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Towards an understanding of what
changes and how people cope
following Bariatric Surgery

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Doctorate in Clinical Psychology



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Thesis Abstract

Introduction

Bariatric surgery (BS) is currently the most effective treatment for morbid obesity. However, many individuals fail to lose or maintain adequate weight loss. It is a challenge to understand why some individuals can make the required changes following BS and some cannot. Evidence suggests that emotional eating (EE) may be associated with poorer outcome. However, there is as yet no conclusive research or review of the research in this area.

Method

A systematic review was conducted with the aim to examine how EE relates to BS outcome. This review was complimented by a qualitative research project examining the experiences of individuals following weight loss surgery, with a particular focus on what changes and emotional coping.

Results

Systematic review results suggest that EE is associated to poorer weight loss following BS. Six superordinate themes emerged from the qualitative research project; Surgery Outcome, Changing Views of the Self, Coping with Emotions, Being Judged Negatively, Being Obese is a Barrier to Living and It's a Different Addiction.

Discussion

The overall results suggest that EE is an ongoing issue following bariatric surgery. BS seems to initiate various changes in behaviour, and cognition, together with increased sense of control. However, such changes seem to be attributed to BS, which is suggestive of an underestimation of self efficacy. Perceptions of obesity being the result of an addiction and emphasis on the difficulties associated with losing weight further highlight the issue of reduced self efficacy. This study also highlights that for many, having surgery does not cure all difficulties associated with eating. There are possibly underlying difficulties associated with obesity, such as neurocircuitry pathways that increase desire for food, whilst reducing control and attachment difficulties that reduce emotion regulation capacity. However, much work is required to understand such explanations and develop appropriate psychological interventions.

Conclusion

The overall results from this thesis provide support for the view that EE and associated emotion regulation difficulties are related to poorer BS outcome. What seems clear from this

research is that, although BS provides many positive changes, the battle against obesity continues for most and services are currently limited in their resources to intervene.

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I would like to dedicate this project to all of the participants who gave up their time and so candidly shared so much about their lives, without them, this project would not have been possible.

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Systematic Review

Title Page

Emotional Eating and Bariatric Surgery Outcome: A systematic review

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Abstract

Background

Bariatric surgery has been increasingly viewed as an appropriate treatment for morbid obesity. However, the outcomes following such surgeries are varied, with many individuals failing to lose or maintain adequate weight loss. Some studies have suggested that emotional eating may be linked to surgery outcome, however, there is as yet no review of the research in this area. This review examines the current evidence for whether emotional eating relates to BS outcome in terms of weight loss.

Method

A literature search for studies that specifically measured emotional eating and BS outcome was conducted. Multiple electronic databases were searched; all reference lists of included articles were hand-searched; all relevant primary authors and additional researchers in the field were contacted.

Results

Eight studies were included in the review. The research aims and methodologies across the studies varied, none utilised a UK sample and the quality of research was mixed. The different forms of EE and weight measurement used across studies, make comparisons difficult but the main finding of this review was that there is evidence to suggest that the existence of emotional eating is associated with poorer outcomes following BS, i.e. reduced weight loss.

Conclusion

There is evidence that emotional eating is associated to less successful BS outcome, however, this paper highlights the various methodological issues with research in this area. Future research examining BS outcome would benefit from adhering to the methodological suggestions made in this review. For example, when measuring BS outcome, there should be sufficient time post surgery to allow for any difficulties to impact weight loss and valid and reliable measures of both EE and weight loss should be utilized.

Key words: Bariatric Surgery; Emotional Eating, Disordered Eating, Eating Behaviour, Obesity

Introduction

Obesity is defined as a Body Mass Index (ratio of weight to height) of over 30kg/m² and has been attributed as being the main cause of numerous common physical health conditions and premature deaths in the UK [1]. As a consequence, obesity costs the NHS in Scotland approximately £171 million per annum [1]. Furthermore, the rates of obesity in the UK are rising and since 1970, rates have risen by almost 400% [2]. However, many weight loss treatments are unsuccessful and currently, Bariatric (weight loss) surgery (BS) is the most efficacious treatment available to improve health status and prevent an untimely death [2]. Research has demonstrated that BS can produce significant weight loss and cost effective health benefits and has therefore been recommended as treatment of choice for those with a BMI above 40, or for those with a BMI over 35 with associated comorbidities [3].

Bariatric Surgery Procedures

There are several types of BS procedures, which fall into two broad categories; malabsorption and restriction. The function of malabsorption techniques is to disable the body from absorbing as many calories. This is typically done by creating a diversion so that food bypasses the stomach and moves straight to the intestine, therefore giving the body less opportunity to absorb calories. Restriction techniques differ in that the main aim is to reduce the stomach's capacity, therefore providing individuals with satiety after consuming smaller amounts of food. Roux-en-Y gastric bypass (RYGBP) is the most common procedure conducted in the US and is viewed as the 'gold standard' treatment for morbid obesity [4]. RYGBP essentially creates a bypass of the stomach so that food is moved straight to the small intestine. Another type of BS that involves bypass of the stomach is the biliopancreatic diversion (BPD). Due to the nature of both these malabsorption procedures, some restriction is also created and individuals feel a sense of satiety with less consumption. Vertical banded gastroplasty (VBG) is a restrictive technique that involves stapling a section of the stomach, providing a much smaller stomach area that increases satiety. Laparoscopic gastric banding (LAGB) is another common operation, particularly in the UK [2], which creates restriction by laparoscopically inserting a silicone band across the stomach. The restriction caused by the band can be adjusted by filling the band with a saline solution.

Bariatric Surgery Outcome

BS however, is not an easy option as post surgery regimes require dramatic lifelong changes; individuals are required to follow restricted diets, particularly in the first few months following surgery, when mostly a liquid diet is consumed. Individuals are also required to permanently eat significantly smaller than average portion sizes and may be unable to tolerate certain food groups or consistencies. Many of the required changes following surgery are the specific behaviours that individuals have been struggling with and have ultimately led them to require BS.

In general, and particularly initially, individuals do tend to lose a significant amount of weight but for some, the changes are less than they would hope for and weight regain can occur [5]. Some outcome research suggests weight tends to increase gradually two years post surgery [6, 7] and a failure rate of 40% has been found for long term outcomes of gastric band BS [8].

Several factors have been highlighted as being related to insufficient weight loss following surgery, such as having a diagnosis of binge eating disorder [7] and eating in response to emotional distress [8, 9]. The majority of studies examining possible predictors of outcome have focused on binge eating, with far less focus on emotional eating (EE). However, there appears to have been a gradual increase of research in this area over recent years. As yet, no systematic review has been conducted to examine the evidence of how EE relates to BS outcome.

Review Aim

The primary aim of this present review is to summarise the relevant research examining how emotional eating relates to weight loss following BS. It is intended for this review to be of use clinically, particularly when service providers are considering the type of support individuals require when approaching such a life changing procedure. It is also anticipated that this review can direct future research in this much neglected area.

Method

Inclusion and Exclusion Criteria

The current review included papers with adult samples who have undergone any form of weight loss surgery, including all ethnicities and either gender. Studies recruiting adolescent samples were excluded. Studies measuring EE prior to and following BS were included. Due to lack of resources and time restraints, only publications in English were included.

Identification and Inclusion Process

An initial literature search was conducted in October 2012 to search for existing reviews in this area. This was conducted by accessing PsycINFO Database and the online Cochrane Database of Abstracts of Reviews of Effects (DARE), however, no reviews were found. All equivalent terms of BS were searched together, combined with the use of Boolean search terms, with terms that would identify EE. The terms used for the preliminary search were: bariatric surgery, weight loss surgery, gastric bypass, gastric balloon, Roux en-Y, gastric sleeve, eating behaviour, maladaptive eating, emotional eating, disordered eating and eating difficulties.

In November 2012, using the above combinations, the following electronic databases were searched: AMED (1985-2012); EMBASE (1974-2012); Medline (1946-2012) and PsycINFO (1806-2012). All duplicates were removed and the 201 results from this search were then screened to determine if they were suitable for this review. In this review process, papers were excluded if they had clearly not measured emotional eating behaviour or if they were not written in English. The remaining (n= 48) articles were retrieved in full and read to determine suitability.

In addition to the 48 retrieved articles, prominent authors were contacted to request unpublished studies. As highlighted by the Cochrane Collaboration [8], published articles have been found to bias towards publishing studies that have found positive findings, which results in a publication bias. Systematic reviews are often subject to publication bias, which can result in a review that is biased towards positive results. Primary researchers in the area were contacted in a bid to reduce publication bias but no additional studies were obtained.

To assess for any additional papers that were not retrieved in the literature searches, reference lists were screened and the Journal of Obesity Surgery and the International Journal of Obesity were screened and hand searched. As a result of the additional searches, no new studies were identified.

In total, 48 papers were retrieved and screened for eligibility. Of the 48 screened, 8 studies met the inclusion criteria and were included in this review. A diagram of this process is illustrated in Figure 1.

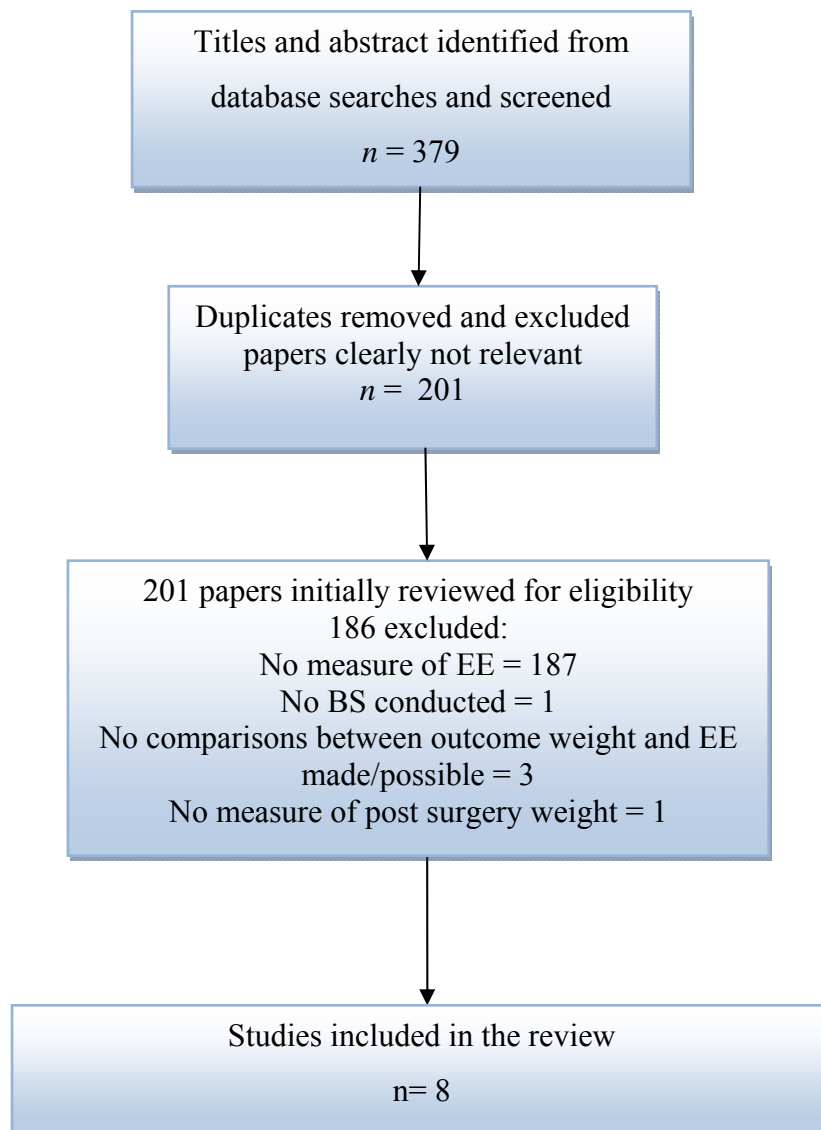


Figure 1: Flow chart of study selection process for systematic review

Assessment of Included Studies

Various guidelines have been published to assist the development of systematic reviews, for example, Higgins and Green [8] and the Centre for Reviews and Dissemination [9]. However, such guidelines have been developed primarily with the intention to evaluate treatment efficacy and therefore uses randomised control trial methodologies as a marker for studies to be measured against. Although such guidelines have been referenced for this current review, they were not wholly applicable and therefore a bespoke assessment criteria was developed to suit the specific aims of the current review. The assessment criterion is a systematic way to determine the extent to which each paper addresses the aim of this review. Developing an individually tailored criterion when appropriate is a recognised methodology for conducting reviews [9].

Rating Process

For the rating process, each of the selected studies was graded across the 6 items by the author and by a second rater. The scale employed by this review was developed in accordance with SIGN (Scottish Intercollegiate Guidance Network) guidelines [15]. Although numerical ratings are not weighted and are purely ordinal in nature, it is noted that this can add clarity for the reader and can highlight which papers are of higher quality. Therefore a numerical scale is adopted in the descriptive table.

The following 6 items were included in the assessment criteria¹; Time since surgery; Type of surgery; Sample size; EE Measures employed; Weight Measurement and Data compared to surgery outcome. Each item will now be further operationalised.

1. Time since surgery

Time between surgery and weight loss measurement was selected as an important criterion due to the nature of weight loss following surgery and therefore papers were rated as to whether they measured weight loss at a sufficient time post surgery.

Diet regimes following BS vary depending on the type of surgery but all require some level of liquid diet and gradual inclusion of food for a period of time following

¹ A copy of the Quality Criterion is included in Appendix 1 of the thesis.

surgery. A significant amount of weight is often lost in the initial 6 months and then the rate of weight loss tends to slow down but continue gradually until a plateau around 2 years post surgery [10]. A comprehensive systematic review conducted in 2009 also found that weight loss does not tend to continue 2 years post surgery [11]. Although there is no gold standard with regards to the most accurate time point to measure weight as an outcome of BS, it seems that the majority of weight is lost between 6 months and 2 years post surgery and in order for the full effect of the BS to be measured, a more longitudinal perspective is required. However, research examining longitudinal BS outcome is scarce and in order to review the available research, papers measuring outcome at earlier time points were included in this review.

To allow for the new eating behaviours to establish and for the weight loss to commence papers were required to measure weight loss at least 8 months post surgery. Prior to 8 months post surgery, patients would be still in the process of establishing their normal eating patterns and therefore weight measurements at this point would likely be unrepresentative of 'outcome'. Papers with outcome weight measure less than 8 months post surgery were therefore rated as poorly addressed, with a numerical score of 0, in terms of this criterion. Studies with outcome weight measurements between 8 and 18 months post surgery were rated as adequately addressed, with a numerical score of 1. As previously noted, in order to obtain a clearer indication of surgery outcome, a measurement of weight towards 2 years post surgery is ideal. Therefore, studies measuring post surgery weight 19 months and more were rated as well covered, with a numerical score of 2.

2. Type of surgery

There are various types of BS, which have evolved over the past 50 years [12]. The different types of surgery currently available differ in terms of the procedure itself and various aspects of the outcome. For example, the bypass type of BS tends to lead to greater overall weight loss but also with that, more undesirable side effects such as 'dumping syndrome' and malnutrition [12]. Gastric banding type of surgeries tend, however, to create a more gradual and smaller weight loss in comparison to bypass surgeries but with fewer related side effects [12]. Due to these differences between different types of surgeries, it seems important that any review of surgery outcome,

take into account the type of surgery employed. Many researchers group the various types of BS together. However, for the purposes of this review, it was deemed preferable that papers detailed the type of surgery and compared outcomes for different types of surgery separately. Papers were ranked as well covered, with a numerical score of 2, if all participants had the same type of surgery or if comparisons were made between the outcomes of the different types of surgery. Studies were ranked as adequately covered, with a numerical score of 1, if the type of surgery for all participants was described but no comparisons were made. The reader can however, make some conclusions about where there are differences in the outcomes between the different types of BS. Studies were ranked as poorly addressed, with a score of 0, if the type of BS was not clearly detailed or if no comparisons could be made

3. Sample Size

In general terms, the greater the sample size employed in a study, the greater the statistical power and reliability. Various methods have been developed in order for researchers to determine the sample size required in order for their results to have the statistical power to detect effects where they exist. BS research typically employs what would be considered relatively small sample sizes due to the small numbers of people receiving this treatment, particularly outside of the US. As this is a growing area of research within an already small population, it was accepted that for the purposes of this review, studies with small (less than 50) sample sizes are still of value and studies were not excluded on the basis of using a small sample size. Using the available research as a guide, sample sizes of more than fifty were deemed to be of adequate sample size and were considered to be well covered, with a score of 2. Papers with a sample size less than 50 were rated as adequately covered, with a score of 1 and those with less than 25 were rated as poorly addressed, with a score of 0.

4. Appropriate measures employed

To aid comparison across studies and therefore ensure reliability, it was deemed preferable that studies used standardised and validated measures of EE. However, it is also accepted that as this is a growing area of research, new methods of measuring EE specifically for the BS population are developing and therefore studies which developed their own measures or who assessed for EE by means of a non-

standardised clinical interview were still included, although allocated a lower rating than those using suitably standardised approaches. Papers were rated as to whether they had used measures that were both valid and reliable measures of EE. Papers that employed a standardised, validated measure of EE were rated as well covered, with a score of 2 and adequately covered, with a score of 1, if standardised measures were not used but instead the study solely employed clinical interviews. Papers were rated as poorly addressed, with a score of 0, if they employed non standardised and validated measures, without clinical interviews.

5. Measure of weight loss

As yet there is no universal agreement as to how BS research should measure outcome. Clearly, the focal goal of BS is to reduce weight and improve associated health problems but for the purposes of this review, the outcome of weight loss is used as the outcome measure. However, methods used for measuring weight loss vary, for example, BS outcome papers use measurements that include changes to absolute weight, percentage reduction in BMI, percentage excess weight loss and percentage weight loss [13]. This issue has recently created some debate within the field. One of the main scientific journals in the area; Obesity Surgery, has recommended that researchers use the measurements, Percentage of Excess Weight Loss (%EWL) or Change in BMI and %EWL appears to be the more popular methods used. However, some researchers have highlighted that %EWL, one of the most widely used methods, produces variation that can confound results [14]. Van de Laar and colleagues [14] demonstrate that when using %EWL, patients with lower pre surgery weight will appear to have a more successful outcome than those who have higher initial weight and have lost more actual weight. For this reason, some researchers have advised that this method should not be used in comparison studies [14]. It has been highlighted that the most reliable method of measuring and comparing weight loss following BS is Percentage (or Total) Weight Loss [14]. Therefore, studies using Percentage (or Total) Weight Loss methods were ranked as well covered, with a score of 2. Studies using the more problematic methods such as Excess Weight Loss or percentage reduction in BMI were ranked as adequately addressed, with a score of 1. Studies that use other, less standardised forms of weight loss measurement, which make results difficult to interpret and comparisons across studies difficult, were rated as poorly addressed.

6. Emotional eating compared to surgery outcome

Again, due to the recency of BS and lack of research examining psychological factors associated with morbid obesity and BS outcomes, little detail is known about the relationship between EE and measures of BS outcome. However, there is some evidence to suggest EE is associated to poorer outcomes following BS and it is therefore preferable for the purposes of this review that studies have compared EE to some measure of weight loss following surgery. Studies were rated as well covered, with a score of 2 if EE measurement was compared to weight loss outcome using appropriate statistical approach (e.g. correlation). Studies were rated as adequately covered, with a score of 1 if, EE measurement was not compared to weight loss outcome but the data was available for the author of this review to make appropriate comparisons. A rating of poorly addressed, with a score of 0, was given to papers where no or inadequate comparisons were made and interpretation by the current author was not possible.

Characteristics of Included Studies

Design

The majority of studies included in this review ($n = 8$) were cross sectional in design, all were open studies and relied on self rated measures of EE. One of the included studies was a clinical trial, measuring the impact of intervention on outcome of BS [16]. However, the trial was not directly relevant to the aim of this review. The relevant characteristics of the included studies are outlined in Table 1.

Types of Bariatric Surgery

The BS procedures included in this review are clearly illustrated in Table 1. Canetti, et al. [17] and Mathus-Vliegen, [18] recruited participants who had received a combination of BS procedures. The remaining 6 papers all focused on a single type of BS. Of the included studies, 3 recruited participants who had received RYGBP [16, 19, 20]. LAGB procedure was used in 1 of the included studies [19] and VBG in 2 studies [20-21].

Weight Loss Measurement

The method of measuring weight loss varied across studies, with 3 studies employing Excess Weight loss [18, 20, 21], 2 using Percentage Excess BMI Loss [16, 20]. The remaining 3 studies each utilised separate approaches; change in BMI [20], Percentage Weight loss [19] and Total Mean Weight loss [17].

Emotional Eating Measures Used

The majority of studies (n = 5) used one of two standardised measures of EE; the Dutch Eating Behaviour Questionnaire (DEBQ) [21] and the Emotional Eating Scale (EES) [22]. One study employed both measures [23]. The DEBQ was most commonly used [18, 23-25], with two papers selecting the EES [23, 20]. Three studies developed their own specific questionnaire for the purpose of the study [16, 17, 19]. The EE measures employed by included studies are clearly illustrated in Table 2. As illustrated in Table 2, the measure of EE was taken at various time points across the studies. For 2 of the studies, it was unclear when the measure of EE was taken [17, 19], 3 studies used pre surgery measurements [20, 24, 25] and the remaining 3 studies used post surgery measurements [16, 18, 23,].

Study	Surgery Type	Emotional Eating Measurement
Fischer, et al., (2007)	RYGBP	EES
Eddins, (2009)	RYGBP	DEBQ & EES
Mathus-Vliegen (2007)	VBG & GB	DEBQ
van Hout, et al. (2007)	VBG	
van Hout, et al. (2009)	VBG	
Canetti, et al. (2009)	VBG & LAGB	Purposefully designed questionnaire
Chesler (2009)	RYGBP	
Colles, et al. (2008)	LAGB	

Table 2: Emotional Eating Measurement

Study	Country	Study type	Surgery Type	Weight Loss Measurement	Follow up	EE Measurement	EE Measured	Sample Size	Participant Characteristics	
									Mean Age (SD)	Female (%)
Canetti, et al. (2009)	Israel	Open Study	VBG	Total mean weight loss (Kg)	12 months	Own questionnaire	Unclear	7	34.2 (10)	86
			LAGB					44		
Chesler (2009)	USA	Open Study	RYGBP	% Excess BMI Loss	1 to 12 years	Own questionnaire	Post BS 12-146 months	15	50.5 (54.1)	100
Colles, et al.(2008)	Australia	Open Study	LAGB	% Weight Loss	12 months	Own questionnaire	Unclear	129	45.2 (11.5)	80
Eddins, 2009	USA	Open Study	RYGBP	% Excess BMI Loss	2.5 – 11 years	DEBQ and EES	Post BS 2.5-11 yrs	189	50.4 (9.6)	90
Mathus-Vliegen (2007)	Netherlands	Open Study	VBG	% Excess Weight Loss	8.2 years (SD, 4.49)	DEBQ	Post BS Mean 8.2 yrs (SD 4.49)	201	42.9 (10.2)	89
			GB					35		
Fischer (2007)	USA	Open Study	RYGBP	BMI change	8m (SD 23.85)	EES	Pre BS (no indication of time)	144	40.28 (*)	80.6
van Hout, et al. (2007)	Netherlands	Open Study	VBG	Excess Weight Loss	6m, 1yr & 2yrs	DEBQ	Pre surgery (no indication of time)	91	38.6 (8.3)	88
van Hout, et al. (2009)	Netherlands	Open Study	VBG	Excess Weight Loss	2yrs	DEBQ	Pre BS	112	38.8 (8.3)	88

Table 1: Characteristics of Included Studies

* SD not reported

Emotional Eating and Surgery Outcome

All of the included studies made some attempts to analyse the relationship between EE and weight loss following BS. As stated previously, the studies used various methods to measure BS outcome and different approaches to comparing EE to outcome were employed; with regards to the measure of EE used and the time point at which EE was measured, which causes some difficulties with making comparisons between the studies. One study reported that EE made no unique contribution to the variance of weight loss but that a positive correlation was found [24] and Fischer, et al., [20] found no relationship between EE and BMI at 8 months post surgery. Chesler [16] did not make any comparisons between EE and weight loss following BS, however, the data was presented in the article and the current author made this comparison using Pearson's Correlation. Results from this indicate a significant inverse relationship between EE and post BS weight loss; $r = -0.69$, $p < .01$. The remaining 5 studies reported a significant inverse relationship between EE and weight loss following BS. The outcomes of the included studies are outlined in Table 3.

Assessment of the Included Studies

The author rated all included studies using the previously mentioned criteria. The criteria were based on the quality of the papers in terms of their methodology in addressing the aims of the review. The second rater randomly selected 50% ($n = 4$) of the included studies using a random number generator and independently rated papers using the same criteria. There was 92% agreement between the author and second rater. Table 4 illustrates the overall ratings.

According to the ratings of individual papers, Eddins [23], van Hout, et al. [24] (2007) and van Hout, et al., [25] were the best quality studies to meet the requirements of this review. The remaining 5 papers achieved lower rating scores for various reasons, which will now be detailed further.

Several studies were rated lower due to having insufficient time post surgery [17] [16, 20, 19]. The remaining 4 papers [18, 23-25] collected data at least 18 months post BS and were therefore rated as well covered.

Two papers were rated down due to not comparing type of surgery; Canetti, et al. [17] combined data from participants receiving VBG and LAGB and Mathus-Vliegen [18] from VBG and GB. The remaining 6 papers [16, 19, 23, 20, 24, 25] recruited participants who had received one surgery type and were therefore rated as well covered. No studies attempted to make comparisons of EE and BS outcome between different types of BS.

The majority of papers were rated as well covered with regards to recruiting sample sizes of greater than fifty [18-20, 23-25]. With 1 paper achieving adequate ratings for sample size [17] and another received a rating of inadequate for insufficient sample size [16].

The majority of papers received a well covered rating for using standardised measures of EE [18, 20, 23-25]. Three studies were rated as inadequate for using a non-standardised measure of EE [16, 17, 19] all of whom developed their own measures of EE.

With regards to the measurement of post surgery weight loss, only 1 study was rated as well covered [19]. The majority of studies were rated as adequately measuring weight loss [16, 18, 23-25]. One paper was rated as poorly addressed [20].

Six of the reviewed studies were given a rating of well covered relating to testing the relationship between EE and BS outcome [17, 18, 23-25] With one study rated as adequately addressed [16] and the remaining study was rated as inadequate due to comparing EE to BMI pre surgery and BMI post surgery but not to weight loss itself [20].

Emotional eating measurement	Study	Time since surgery	Surgery outcome measurement	Relationship to weight loss	
				Statistics/Analysis	Result
EES	Fischer, et al. (2007)	8 months (mean)	BMI	Regression	No relationship
EES	Eddins, 2009	6 years (mean)	%EBL	Linear regression	Sig. relationship (p < 0.006)
DEBQ					Sig. relationship (p < 0.006)
DEBQ	Mathus-Vliegen (2007)	8.2 years (mean)	EWL	Regression	Sig. inverse relationship
	van Hout, et al. (2007)	6 months	%EWL	Hierarchical multiple regression	Sig. relationship (no values reported) but no predictive value found*
		1yr			Sig. relationship (no values reported) but no predictive value found*
		2yrs			Not reported
	van Hout, et al. (2009)	2yrs	%EWL	Regression	Sig. relationship (no values reported) but no predictive value found
Purposefully Designed Questionnaire	Canetti, et al. (2009)	1 year	Unclear	SEM	Sig. inverse relationship (p<0.01)
	Chesler (2009)	1yr	% EBL	Correlation (by current author)	Sig. inverse relationship (p<0.01)
	Colles, et al. (2008)	12 months	%WL	Bivariate correlations	Sig. inverse relationships: anxiety (p= 0.006) depressed/upset (p=0.008)

Table 3: Emotional Eating and Surgery Outcome

Notes: Time since surgery = mean if available or latest follow up time, BMI = Body Mass Index, %EBL = percentage excess BMI loss, EWL = excess weight loss, %WL = percentage weight loss. SEM = Structural equation modelling, Sig. = Significant.

**EE found to explain some variance in EWL when combined with changes in restrained and external eating.*

Study	1. Time Since Surgery	2. Type of Surgery	3. Sample Size	4. Measure(s) Standardised	5. Weight Measurement	6. EE and Outcome	Mean Quality Rating Score
Eddins (2009)	2	2	2	2	1	2	1.83
Van Hout, et al. (2009)	2	2	2	2	1	2	1.83
Van Hout, et al. (2007)	2	2	2	2	1	2	1.83
Colles, et al. (2008)*	1	2	2	0	2	2	1.5
Mathus-Vliegen (2007)*	2	0	2	2	1	2	1.5
Fischer, et al. (2007)	0	2	2	2	0	0	1
Chesler et al (2009)*	1	2	0	0	1	1	0.83
Canetti et al (2009)*	1	0	1	0	0	2	0.67

2= Well Covered, 1= Adequately Addressed, 0= Poorly Addressed

*Studies rated by second rater

Table 4: Quality ratings for included studies

Methodological Strengths and Limitations of Included Studies

For the majority of the studies included in this review, their primary aim was not to determine whether EE was related to BS outcome. However, this information was not included as part of the overall methodology of the studies or was something that could be extrapolated from the reported results. Each paper's methodology was therefore not included in the criteria but it is recognised that the methodology and standard of research conducted is crucial when interpreting the results of the included papers. The quality of the research conducted by the included studies is important when determining the strength of the information obtained by this review. The collective strengths and weaknesses of the included studies will therefore be discussed; the relevant additional information is illustrated in Table 5.

One of the overall strengths of many of the studies included was the inclusion of relatively large sample sizes. As previously mentioned, those receiving BS are a relatively small population and therefore obtaining large samples for conducting research can be troublesome. Another overall strength is that many of the studies attempted to collect outcome data at time points that would allow for the development of some of the difficulties that can often occur. It seems that researchers are becoming aware of the problem of weight regain that can occur and are not solely focussing on the early stages post surgery, where outcome measurements appear more positive. Another positive aspect of the research reviewed is that there is an attempt to examine the psychological processes that may be involved in eating behaviour and therefore be implicated in BS outcome.

With regards to the limitations, one general criticism of the included studies is the lack of rationale provided for the methods used. For example, when researchers selected their method for measuring weight loss following BS, they did not provide any explanation as to why this was the selected method. As previously discussed, this is currently an issue causing some debate in the field and it is therefore important that researchers explicitly explain their decision for selecting one particular measurement. This also applies to measures of EE. The majority of studies utilised standardised measures of EE, with Eddins [23] employing both the EES and DEBQ, however, 3 studies developed their own measures of EE [17, 16, 19]. The studies developing

their own EE measure provided no rationale for doing so. The use of non standardised measures in this way causes several problems with regards to replication of studies and comparing results. The EE measurement for Colles, et al, [19] was particularly lacking in transparency and it is quite unclear to the reader what this measurement involves. For example, it is unclear what questions were asked of participants and how this questionnaire was developed and if it was tested for validity and reliability.

Another limitation of the studies is that of recruitment and whether the samples included in the studies are representative of the BS population as a whole. All studies employed an 'opt in' style of recruitment, which may create a response bias, in that those who are more likely to participate are those who have had more successful outcomes. Indeed, one of the included studies [19] compared the %WL of participants with the centre's patients who chose to not respond and found that the non responders had significantly poorer %WL. This finding, although in isolation, supports the view that much of the BS outcome research conducted and reviewed in this paper is biased towards those who have more positive outcome and should therefore be considered when any interpretations are made from this review.

In addition, some studies have only recruited patients who completed pre surgical screening questionnaires [20, 24, 25]. Both van Hout, et al. papers [24, 25] fail to detail the percentage of overall patients completing the pre screening measures, however, Fischer, et al., [20] report that this constituted 52% of the overall BS patients at that particular clinic. As 48% of the population were not able to participate in this study, this causes some concern with regards to the representativeness of the sample. It is possible that those who completed the pre screening measures and those who did not, are two distinct groups. For example, it may be that the 52% who completed measures did so because they were the patients who met with a psychologist prior to surgery due to identified difficulties. Conversely, it may be that individuals with more severe eating pathology and psychological difficulties, avoided the pre surgery questionnaires for fear of being refused surgery. Without full information regarding those who were not included in the research, one cannot fully determine whether or not the sample is representative.

Paper	Power Calculation	Response Rate	Study Inclusion/Exclusion Criteria	Surgery Inclusion/Exclusion Criteria	Psychological Screening (Pre/Post)	Psychological Intervention (Pre/Post)	Surgery Funding Type
Canetti, et al. (2009)	Not described	98% (in diet group 80%)	-Speak Hebrew -Able to complete questionnaires	Not described	Not described	Not described	Not described
Chesler (2009)	Not described	Not described	Not described	Not described	Not described	Described (combined bariatric support group & individual psychotherapy)	Not described
Colles, et al.(2008)	Not described	75%	No previous BS	Not described	Not described	Not described	Not described
Eddins, 2009	Not described	12%	None	Not described	Not described	Not described	Not described
Mathus-Vliegen (2007)	Calculated effect size	76%	VGB/GBP between 1980-1997	Not described	Not described	Not described	Not described
Fischer (2007)	Not described	52%	Completed selected questionnaires pre surgery (52% of BS patients)	BMI, assessed by surgeon, dietician & psychologist	Pre	Not described	Not described
van Hout, et al. (2007)	Not described	97%	Patients who had been psychologically assessed (no indication of the proportion of overall patients)	BMI, assessed by surgeon, dietician & psychologist and managed pre op 10% weight reduction	Pre, 6 months post op (unclear if this standard service protocol or part of study)	Not described	Not described
van Hout, et al. (2009)	Not described	77%	Patients who had been psychologically assessed (no indication of the proportion of overall patients)	BMI, assessed surgeon, dietician & psychologist and managed pre op 10% weight reduction	Pre	Not described	Not described

Table 5: Additional Methodological Characteristics

Linked to this is the issue of not providing full information relating to the inclusion/exclusion criteria of BS. In some clinics, the presence of disordered eating behaviours, such as emotional eating, upon assessment, would warrant a delay surgery until such difficulties can be resolved. Since each clinic differs in its practices, it is pertinent that studies investigating EE, detail the inclusion/exclusion criteria of both the surgery itself and the recruitment of participants.

Another important factor that has been neglected by the majority of the included studies is that of psychological treatment. It is clear from several papers [20, 24, 25] that a pre surgery psychological assessment was conducted, however, the remaining papers fail to detail if this took place and all but one paper [16] fail to detail whether any of the participants received psychological intervention pre or post surgery. Although Chesler, [16] detailed which participants had received some form of psychological therapy, there was no distinction between individual psychotherapy and BS support group. It was therefore difficult to determine the nature of intervention and in particular, whether the individual psychological intervention was specifically focused on weight related issues or other psychological problems. None of the included papers provide information regarding psychological intervention for EE or for problematic eating in general. This is of particular relevance for the papers that test for a relationship between pre surgery EE and surgery outcome. If patients receive psychological interventions for EE, then it is difficult to know whether the outcome is measuring impact of surgery or of psychological treatment. Furthermore, any possible link between EE and poorer BS outcome could be potentially masked by the impact of the psychological intervention.

One of the papers included in this study has several methodological limitations [16]. The main concerns are that of homogeneity, sample size, measures used and external validity. However, it should be noted that this paper is published as a single case study, with the inclusion of an ‘informal’ study, which summarised the outcomes of the clinic’s patients. This paper included participants with a large range of time post surgery (12 – 146 months) furthermore, this paper had a very small sample size (n=15). As previously mentioned, this paper also developed a measure of EE for the purposes of the study; again there was no rationale for doing so over using a standardised measure such as the EES or DEBQ. It could also be argued that this sample lacked homogeneity. For example, the surgery practices and supports of those receiving surgery 12 years ago, would be very different to what people would receive now. Furthermore,

all of the participants were receiving some form of psychotherapy and therefore the external validity of this paper may be questionable.

Another limitation of the studies included in this review is the issue of gender differences. National statistics show gender equality in terms of obesity rates, [26], however, from published studies in the area, it is evident that those seeking and receiving BS are predominantly female. A recent review of bariatric surgeries carried out in the UK found that 80% of patients receiving BS were female [27]. Despite the significant predomination of women in the BS population, there appears to be a lack in the research investigating the reasons for this or if there are differences between men and women who receive BS. Although there is no known evidence of differences existing between males and females who seek BS, there is evidence to suggest that men can have different responses to emotions [28] and therefore it is possible rates of EE may differ between males and females. However, the majority of studies only partially compared gender differences and few analyses were conducted that related to EE and BS outcome. Van Hout [24] reported that female participants scored significantly higher EE than males but did not differ with regards to changes to EE post surgery and Eddins [23] reported statistically higher rates of EE in female participants compared to males using both the EES and DEBQ. It seems therefore that there may be some gender differences with regards to EE and BS outcome and it is important that future research account for this when including data from men. Although a very small minority in an already small population, it also seems necessary to investigate the experiences of men receiving BS and whether their needs differ. It is also important to understand why men are so underrepresented in this population and would be worthwhile investigating the possible reasons for this. An example of possible explanations and routes of enquiry are whether BS is viewed more acceptable by females or if there is a bias with regards to referrers or insurance companies.

The issue of when measurements are taken is another possible limitation of the included studies. The aim of many studies in this field is to discover factors that will be predictors of BS outcome. Therefore, measures are taken pre surgery and are later compared to weight loss following BS. One possible problem with this is that eating behaviours are not fixed entities. In fact, the process of BS itself will, by design, change, to varying degrees, aspects of a person's eating behaviour. It is also plausible that a person eating in response to emotional state prior to BS is less evident as their eating behaviour would, in general, be less restricted. Therefore,

although EE pre surgery may have some relationship to BS outcome, what may be of more consequence is the existence of EE post surgery. If EE exists post surgery, then a person's ability to cope may be significantly restricted and their ability to adapt to post surgical regimes could be limited. It may be helpful for future research to measure the existence of EE post surgery and measure the relationship between EE and BS outcome.

Discussion

The results of this review support the view that there may be a relationship between EE and less successful weight loss outcomes following BS. The included studies employed numerous methodological approaches, used different measurements of EE and weight loss and measured both EE and outcomes at different time points. However, despite all of the variations across the studies, an association between increased EE and poorer weight loss outcomes following BS was identified in all but one of the included papers [20]. There are several factors which may explain for the different results found by Fischer, et al., [20]. For example, as mentioned previously, the sample recruited may not be representative of BS patients in general and they may instead have measured a specific sub group, with particular characteristics, leading to different results. This paper also measured weight loss at the earliest time point out of all of the included studies, it is possible that this was too early and did not allow for any post surgery problematic behaviours, such as EE, to have an impact on weight loss. Furthermore, this was the only paper to use the weight outcome measurement of BMI change, which could also explain for different results compared to the other included papers. In addition, this was the only paper to solely use the EES to measure EE. Although the EES and DEBQ have been found to provide similar results, as highlighted in Eddins [23], this may warrant further investigation.

What is less clear from this review is the nature of the relationship between EE and BS outcome within the context of other correlated outcome predictors. Two of the included papers [24, 25] conducted hierarchical regression with other correlated factors but neither found EE to be a predictor of BS outcome. Therefore, more focused research is required to fully understand the nature of this relationship.

Despite the apparent link between EE and BS outcome and the development of standardised measures, this appears to be a much understudied area in an already impoverished area. Many of the included studies reported post surgery EE scores but did not make any further analysis

by, for example, comparing to norms or pre-surgery rates. The author compared the mean scores of EE measured by the DEBQ in reviewed studies to norms in the DEBQ manual [21], and although no formal analysis could be conducted, the majority of scores appear to be in the 'high EE' category, suggesting that there may be levels of disturbed eating continuing post BS. This finding has major implications for the provision of support for individuals following BS and highlights that further research is required in order to better understand the role of EE in this population and how EE can impact BS outcome.

The existing evidence base appears focused on collecting data that emphasises the benefits of BS. There is certainly substantial evidence both reported in the papers included in this review and beyond, that the majority of people benefit in many ways from BS. However, a significant number of people do not achieve sufficient weight loss or are able to maintain weight loss following BS. This implies that people are continuing to suffer and currently there is little information to understand the difficulties they face or suggest ways in which services can respond to the needs of those who do have difficulty. In addition, if further evidence confirms that EE is a predictor of poor outcome following BS, it could indicate that EE should be assessed for at pre surgical screening. If EE is highlighted as being present pre surgery, it may be beneficial to offer appropriate psychological intervention to develop emotional coping. This review highlights that more research is required to understand the processes that are involved in the adaptation following weight loss surgery and in particular for those who have difficulty with this process.

One of the motivations for conducting this review was to inform clinical practice, particularly for those receiving BS throughout the NHS in the UK. However, no UK studies were identified as meeting inclusion criteria for this review. The UK has a fully funded healthcare system, but all of the included studies were conducted in countries where medical costs are typically covered by insurance and private health care. However, none of the included studies detailed the source of surgery funding. It is possible that patients receiving an elective surgery paid by different sources will approach the procedure with a different perspective. It is therefore important for future researchers to indicate the source of funding for surgery for participants and determine whether there are any relevant differences between patients receiving funding from different sources. Furthermore, there was a noticeable lack of UK studies in the general topic area. This is perhaps due to the relatively recent emergence of BS in the UK. There is,

however, a need to evaluate BS and identify potentially modifiable risk factors for poor outcome as many health boards throughout the UK are now being funded to offer BS as a treatment for morbid obesity.

Conclusions and Recommendations for Future Research

This review included a relatively small number of papers, some of which had a small sample size and as discussed previously, there are several limitations of the included studies. Due to issues relating to representativeness and other limitations of the included studies, no general conclusions can be drawn from this review. However, some recommendations can be made as a result of this review. It seems prudent that future research focuses on EE and BS outcome. To date, there does not appear to be a methodologically sound piece of research that has, as its primary aim, to investigate this possible link. When such future research is conducted, it is crucial that certain factors are taken into consideration, in order for the results to be more readily amenable to cross study comparison. For example, a recognised measurement of weight loss (percent or total weight loss) should be used, which is taken at a point that will allow for the adaptation to the surgical process (at around 2 years post surgery). Both the DEBQ and EES appear to be valid and reliable standardised measures of EE and therefore, outcome studies should use such measures in order for the results to be compared with other studies. If other measures are being used, then clear rationale should be given, together with a full description of how such measures were developed. It is becoming clear that treating morbid obesity is not solely a medical issue and that psychological factors are relevant to the development and therefore treatment of individuals with significant weight problems. Therefore, it is essential that studies detailing the outcome of BS, indicate other relevant forms of treatment received, specifically, whether patients have received psychological input that would relate to their eating difficulties.

Strengths and Limitations of the Review

The main strength of this review is that it begins to address the significant gap in the understanding of the difficulties individuals face following BS. This review has adopted a systematic, transparent and replicable approach to both the search strategy and the critical appraisal of the reviewed studies, with quality criteria ratings cross checked by an independent rater.

A key limitation of this review is related to the lack of homogeneity across the included papers. No two selected papers used the same population, methods, and analyses, which hinders comparisons between studies. In addition, although many of the selected papers collected data relevant to the review aims, they did not present the appropriate analyses to provide higher quality evidence to fulfil the review's aims. Another potential problem is the lack of UK based studies. The majority of BS research is conducted in the USA and the Netherlands, both of which have different healthcare systems than the UK and focus on different types of BS. The exclusion of non-English language papers may also have excluded relevant studies.

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*Studies included in the systematic review

Bridging Chapter

It is clear from previous outcome research that the various forms of BS produce significant weight loss and concurrent reduction in co-morbid health problems, particularly in the initial year post surgery [1]. Many studies reporting a mean excess weight loss (EWL) at 1 year post BS of around 50% and with approximately 60% no longer meeting the criteria of a diagnosis of type II diabetes [2]. The evidence is undeniable; BS can produce significant and life saving results for people. There is also evidence that various psychosocial factors improve following BS. One consistent factor often measured in BS outcome studies relates to Quality of Life, which can be defined as:

“individuals perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.” [3] (p1)

Health Related Quality of Life is a more specific measure, which refers to the extent to which a medical condition, such as obesity, impacts a person's social, physical and psychological functioning [4]. Van Nunen, et al., [5] conducted a meta-analysis illustrating an increase in Health Related Quality of Life following BS.

In addition to changes in quality of life, research also indicates improvements in psychological factors following BS. For example, there is a reported reduction in depressive symptomatology and binge eating disorder [6]. Self esteem is also often quoted as reducing post BS [6-8]. However, despite self esteem being a much measured concept post BS, a clear definition of self esteem is difficult to find and few studies in the area specifically define the concept. Melanie Fennel has developed a useful cognitive model of self esteem, which defines self esteem as a schematic representation of the self [7] but such clear definitions are not typically referenced in BS outcome research.

Despite the large quantity of positive outcome data for both physical and psychosocial outcomes, BS is not a panacea; many people fail to sustain sufficient quantities of weight loss to improve their long-term physical and/or psychological

health [8]. Longer term, follow-up studies have suggested that as many as 40% of bariatric surgeries conducted are considered a failure due to insufficient weight loss or requiring further major surgery [9].

The factors influencing the varied BS outcome results are as yet unknown. However, several behavioural factors have been highlighted as being related to insufficient weight loss following surgery, such as poor adherence to surgical aftercare support [10], binge eating behaviour [11-13] and eating in response to emotional distress [11, 12]. This evidence also parallels research conducted with non surgical weight loss methods. For example, Elfhag and Rössner [11] conducted a review of the literature and found that weight loss maintenance was associated with factors such as motivation, coping strategies, and self efficacy. This review also identified factors associated with weight regain that included, difficulty controlling eating, emotional eating (EE) and insufficient coping strategies. Byrne, et al., [12] conducted a large scale qualitative study with individuals who had completed non surgical weight loss methods and found that weight maintainers differed from weight regainers on various psychological factors, including EE. This research suggests that individuals who eat in response to negative affect, have poorer outcomes following nonsurgical weight loss treatments. High rates of EE have also been reported in obese individuals who are not seeking treatment [13].

Although there seems to be evidence suggesting EE is related to poorer outcomes following both surgical and non surgical attempts at weight loss, the psychological factors relating to this are unknown. What is not understood is; why do people who eat in response to emotions have difficulties with weight loss? One possible explanation could be related to emotion regulation. Eating in response to an emotional state can be understood as a way to regulate emotions, a type of coping strategy [14]. The concept of emotion regulation aims to explain the process by which emotional states are managed. Emotion regulation has been defined as:

“the process of initiating, avoiding, inhibiting, maintaining, or modulating the occurrence, form, intensity, or duration of internal feeling states, emotion-related physiological, attentional processes, motivational states, and/or the behavioural concomitant of emotion in the service of

accomplishing affect-related biological or social adaptation or achieving individual goals” [15] (p. 338)

This comprehensive definition covers the concept of regulating the various experiences of emotion by behavioural and cognitive actions. People regulate their emotions in various ways, which can involve behavioural, cognitive and physiological processes [16]. Gross and Thompson [16] suggest that the most adaptive and successful way to manage emotional states is to articulate emotions and develop interpersonal and problem solving strategies to regulate emotional states. The processes involved in emotion regulation are also thought to be involved in other aspects of regulation, such as regulation of thoughts, impulses and attention [16]. Therefore, it is possible that an individual, who has difficulties adaptively regulating feelings of frustration, may also have difficulties regulating impulses to eat desirable food.

It seems therefore that a possible explanation for emotional eating (EE), and its link to bariatric surgery outcome, is that a person's ability to regulate their emotional state is linked to how they regulate other factors such as eating behaviour impulses. Therefore if someone has limited resources to regulate their emotional state, they may also have difficulty regulating their eating behaviour, which may correspond to EE. This theory, however, requires further investigation.

In summary, BS is clearly not a 'quick fix' and for those who undergo BS, achieving positive outcomes can be difficult. Following BS, individuals are required to follow rigid, life-long dietary regimes and drastically change their eating behaviour; the specific behavioural changes that most have been unable to do prior to surgery and what has ultimately led them to require BS. Despite such hurdles, outcome research indicates that many do manage to make sufficient changes to their eating behaviour to cause significant, life altering, weight loss. The question that remains unanswered is; what factors influence a person's success in making the changes required following BS? Additionally, it is also important to understand if a person's ability to cope with emotional states is related to EE and BS outcome.

Clinically, it would be valuable to know the factors that could predict difficulties following BS. This information could guide clinicians to provide appropriate intervention, whether it be additional dietary advice, psychological intervention or perhaps to delay surgery until such factors are sufficiently resolved. In addition, if we can better understand the psychological components that allow BS to be successful, we may be able to develop effective psychological interventions that could offer a less invasive, safer and less costly alternative to BS.

Research Aims

The overall aim of this research project is to explore the experiences of individuals who have recently undergone BS. The specific objectives are to understand what changes following BS, including what individuals perceive to have changed following BS and how they made such changes. In addition, as EE has been found to be one factor linked to BS outcome and since EE is a type of emotional coping, this project also intends to examine the ways in which individuals cope with emotional distress following BS, to explore whether any changes to emotional coping occur and if so, how such changes are made.

Methodology

This section aims to provide a rationale for the research design, whilst describing the recruitment method, data collection and analysis, and ethics process.

Design

This study utilised a qualitative design. A qualitative approach was deemed the most appropriate due to the lack of psychologically focused BS research; particularly when focusing on patients' experiences. Qualitative research is thought to be of particular value where the focus is to develop an understanding of a specific area of human experience [17], which is in line with the aims of this project.

Interpretative Phenomenological Analysis

It is recognised that there are various qualitative methodologies that could have been successfully utilised for this research project and the chosen methodology is one of several approaches. Interpretative Phenomenological Analysis (IPA) was selected as

the most appropriate method for several reasons. Firstly, IPA has been developed predominantly for psychological research [17]. This seemed advantageous over other qualitative methods such as Grounded Theory, which has more a wider, sociological approach [18]. In addition, Grounded Theory seeks to develop a theoretical model of a social process [17], which was not the purpose of this paper. The primary purpose of this project was to understand what it was that changed for patients after surgery and what patients themselves experienced and perceived to have changed. IPA's focus on understanding people's experiences from their own point of view fit well with this study's aims:

“IPA is...committed to the examination of how people make sense of their major life experiences” [17] (p. 1)

Ethical Issues

Prior to commencing this study, ethical approval was gained from a Local NHS Research Ethics Committee² and all practice throughout the study was in accordance with current professional standards. Participants were provided both written and oral information regarding the study, which was to ensure that informed consent was gained. In addition, following the interview, participants were provided with a debrief sheet³, which contained details of various sources from which they could seek further information. This included the senior dietician from the weight loss service, the author's supervisor, who was a clinician within the Clinical Health Psychology Department and the author themselves. Confidentiality was maintained throughout the study and once the interviews were transcribed, participants were known only by a research number. All participant details were stored on a NHS secure network, separate from the research data.

² See Appendix 2 for a copy of NHS ethical approval

³ See Appendix 3 for a copy of Participant Debrief Sheet

Participants

It is recommended that qualitative research, which aims to understand a shared experience, should aim to recruit a homogenous sample [19]. In the UK, individuals receive bariatric surgery through both the National Health Service (NHS) and private health providers. As yet, there has not been any research conducted to investigate whether those receiving treatment from private versus NHS facilities differ in terms of severity or outcome. However, based on clinical judgement and anecdotal information from other clinicians throughout Scotland, the author concluded that there was a likelihood of difference between private and NHS bariatric surgery populations. For example, a self paid, private health care customer and an NHS patient may differ in how they perceive and value a procedure. Consequently, to facilitate homogeneity of sample and increase generalisability of results to other NHS samples, only an NHS sample was utilised.

There are varied stances as to the required sample size for conducting qualitative research but there seems to be a general consensus that approximately eight to twenty participants are typically sufficient [20]. For IPA, the aim is to collect enough data from individuals who are able to comprehensively describe their experiences that will allow for the core themes to emerge [21]. The NHS facility accessed for this study conducts approximately 40 bariatric surgeries per year and it was therefore deemed appropriate and viable to recruit a sample of 10 to 15 participants from this small population, with some flexibility to increase recruitment to ensure the data collected is rich and sufficient for the purposes of the study.

All patients who underwent weight loss surgery within the specified NHS health board were sent an invitation letter⁴ from the weight management service along with an information leaflet⁵, which provided details of the study. The only exclusion criterion for this study was that the Weight Management Service deemed participation in the study would not be potentially harmful to the individual and approval was sought from the weight management service for each participant. Potential reasons for the Weight Management Service excluding participants from

⁴ See Appendix 4 for a copy of Invitation Letter.

⁵ See Appendix 5 for a copy of Participant Information Sheet.

the study included significant mental health difficulties (e.g. psychosis) or a risk of suicide. However, no exclusions were made.

It was decided that patients who were a minimum of 6 months post surgery would be invited to participate, as this would allow for patients to have experience of the effect of the surgery both in terms of weight loss and the eating changes that are required alongside the surgery. As this was a relatively new procedure to be offered by this NHS health board, no restrictions were required with regards to the length of time post surgery as all participants would have received the procedure within the past 2 years. Recruitment was conducted between February and April 2012. All 39 patients who underwent weight loss surgery within the Service were invited to participate, 15 (38.5%) responded and were invited to attend an interview, of which 10 (25.6%) attended. Of those who responded, 13 (86.7%) were female and 2 (13.3%) were male, however, only one male respondent contacted the author to arrange an interview but did not attend. All 10 participants were therefore female

Variable		Mean (range)
Gender		100% Female
Age		47 (36-54)
Time since BS (Months)		10 (5-15)
Type of BS	LAGB	30%
	Gastric Sleeve	70%

Table 6: Participant Demographics

Interview Procedure

Participants were interviewed in one of three NHS sites. It would have been preferable to interview everyone in the same location however, in order to maximise recruitment, the author agreed to meet in locations that were most easily accessed by the participants. Upon meeting the author, participants were reminded of the information provided in the participant information sheet and the salient points were read out as a reminder. Participants were then asked to read and sign the consent

form⁶. All interviews lasted between 47 and 122 minutes, with a mean duration of 75 minutes (SD= 27 minutes). All interviews were recorded using a digital recorder, with notes taken throughout by the author.

The semi structured interview schedule⁷ was designed as an aid to encourage participants to discuss their experiences post surgery; with a particular emphasis placed on any aspects of their behaviour or life that they view to have changed since surgery. Specific prompts⁷ were also developed to allow the author to encourage the participant in situ to remain on topic, without creating differences between interviews and to reduce the likelihood of inadvertently leading or guiding responses, which were in line with recommendations by Smith et al., [17].

Once complete, interviews were transcribed verbatim by the author, efforts were made to include the qualitative aspects of the interview and therefore features of the discourse such as pauses, emphases and false starts were included. To ensure participant anonymity, information that was deemed identifiable, such as names and professions, was removed. However, due to the small number of participants and high degree of personal disclosure in the interviews, full anonymity cannot be completely guaranteed.

Analysis

As previously discussed, IPA was the chosen methodology to guide the analysis process. Although a recognised methodology, IPA does not necessitate a standardised protocol for transcription or analysis [17], IPA researchers are encouraged to be creative in the research process but having recognised the need for some instruction for the inexperienced researcher, Smith, et al, [17] developed a general guide that was followed for this project.

The analysis process began with the transcription stage. During this stage, the author became familiar with the data and kept a reflective journal throughout to detail any reflection and emerging themes. Such notes were re-read during analysis and added to the richness of the data. Once transcription was complete, the author became

⁶ See Appendix 6 for copy of participant consent form.

⁷ See Appendix 7 for example of interview schedule with prompts.

immersed in the data, this involved repeated readings of the transcripts. The author made notes of interpretations and emerging themes in dedicated margins throughout the transcripts⁸. Once themes began to emerge from the data, the author, using knowledge of psychological models and theories, together with clinical experience, began to look for connections or superordinate themes between the subordinate themes and a comparison across transcripts was made.

Specific IPA focused supervision was sought from an experienced researcher⁹ who has published several qualitative studies using IPA. Supervision was used to ensure reliability and validity of the transcription and analysis process. The supervisor independently read and coded two complete transcripts, emerging themes were then compared and discussed. In addition, supervision was arranged to discuss emerging themes and ways in which they could be grouped. This process of research supervision added to the validity of the themes. To further validate the analysis, respondent validation was sought by inviting participants to discuss the results with the author. Of the 10 participants interviewed, 6 discussed the validity of the themes with the author and fully agreed with the themes that had emerged from analysis.

Reflexivity

In qualitative research, it is often encouraged to be reflexive; for the author to reflect on their own personal values, belief systems and experiences and how they may influence the research undertaken [22]. The author has therefore provided a self-reflexivity statement to ensure any underlying views held by the author are transparent and therefore can be interpreted by readers.

Self Reflexive Statement

I am a 34 year old female, born and raised in a large central Scottish town. I am of healthy weight, have never been overweight and no members of my family or close friends have been morbidly obese or received any form of weight loss treatment. I have, however, experienced difficulties with my own relationship with food and body image, as have many of my friends.

⁸ See Appendix 8, 9 and 10 for examples of data with analysis.

⁹ Dr Zoe Chouliara

I have worked in the area of Clinical Psychology for 7 years, including the last 5 years as a Trainee Clinical Psychologist. Throughout this time I have developed an interest in the psychology of eating behaviours and a specific interest in the ways people may use food as a maladaptive coping strategy and as a self-soothing response to emotional distress. As part of my training and work experience, I have worked in an eating disorders service and have sought clinical cases where food and the overeating of food has been an issue. Throughout this time, I have developed the opinion that problem eating behaviours can have a function that can cause further difficulties with body weight and body image. I am therefore of the opinion that for many, being morbidly obese, is the symptom of underlying psychological difficulties and to offer surgery as treatment for this problem, only offers part of a solution. I think that surgery should be part of a systemic approach to help people who are morbidly obese and that long term psychotherapy, family therapy, dietary advice and physiotherapy should be the standard treatment. I do, however, view bariatric surgery as a useful tool that can be used as part of the successful treatment of overeating for many people.

**A Qualitative Exploration of Experiences Following
Bariatric Surgery: Towards an understanding of what
changes and how people cope after Bariatric Surgery.**

Author: Kari Henderson

Dundee Adult Psychological Therapies, NHS Tayside, UK
Word Count: 10801

**Short Title: Changing and Coping Following Bariatric
Surgery: A Qualitative Exploration¹⁰**

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¹⁰ This journal article has been written in accordance to submission guidelines for;
Obesity Surgery, see Appendix 9

Abstract

Background

Bariatric surgery is currently the most successful form of treatment for adult morbid obesity. However, some individuals fail to lose a sufficient amount of weight or regain weight. It is a challenge to understand why there is such disparity in BS outcomes and why some individuals manage to make sufficient changes to obtain a positive outcome and some cannot. Some evidence suggests there may be a link between emotional eating and unsuccessful outcome but little is understood about this link. This study aimed to address this by exploring the experiences of individuals following bariatric surgery, specifically focussing on the process of change, how individuals make such changes and cope with emotional difficulties following surgery.

Methods

A qualitative approach was used to explore the experiences of 10 adult women who received bariatric surgery in the preceding 6 to 15 months. Interviews were conducted and then analysed using an Interpretative Phenomenological Approach.

Results

Three superordinate themes of; Surgery Outcome, Changing Views of the Self and Coping with Emotions emerged through analysis.

Conclusions

This study highlights the various changes that occur following bariatric surgery. Although participants described an increased sense of control, this was attributed to the surgery itself, which suggests an underestimation of self efficacy and would benefit from further exploration in future research. Emotion regulation was an ongoing issue for participants, particularly for those who had not adopted alternative coping strategies, which highlights the importance of identifying emotional eating prior to surgery so that alternative strategies can be developed, with psychological treatment if appropriate.

Search Terms: Obesity, Bariatric Surgery, Emotional Eating, Emotion regulation

Introduction

The rates of adult obesity, defined as a Body Mass Index (ratio of weight to height) of over 30kg/m², have risen almost 400% since 1970 and around three quarters of the adult UK population can now be classified as overweight or obese [1]. Obesity causes numerous health complications and has been reported to directly cause over 300,000 deaths in the UK each year, creating an estimated cost of over £1075 million to the NHS [2]. Obesity is often difficult to treat and for many, bariatric (weight loss) surgery is the only option available to prevent an untimely death.

Bariatric surgery (BS) can be a life changing treatment; it can lead to substantial weight loss, with studies typically reporting an average of 50-60% excess weight loss (EWL) [3]. Furthermore, numerous studies demonstrate the related health benefits that follow a reduction in excess weight, with reductions in hypertension, type II diabetes and other related co-morbid health problems [4]. In addition to BS being clinically effective, research has also demonstrated that it can be a cost effective treatment for morbid obesity [5]. BS has therefore been recommended as treatment of choice for those with a BMI above 40, or for those with a BMI over 35 with associated co-morbidities [6].

BS is not, however, a panacea. In general, and particularly initially, individuals tend to lose a significant amount of weight. However, for some, this is less than they would hope for and regain is common [7]. Longitudinal outcome data of BS is scarce. However, research suggests weight tends to increase gradually two years post surgery, particularly for gastric band BS [8, 9] with Lanthaler, et al., [8] finding a failure rate of 40% for longer term outcomes.

What is not yet fully understood, and does not appear to have been the focus of research, is why some individuals lose and maintain a satisfactory amount of weight following BS, whereas others appear to struggle and regain weight. Some research has focused on examining predictors of outcome; taking pre-surgical measures of various psychological and physical constructs to determine if these are related to and are, therefore, predictive of who will and will not have a successful outcome. Although several factors, such as binge eating [9] and emotional eating [10] have

been linked to less successful outcome, due to methodological factors, such as post surgery outcome measurements being taken too early post surgery and issues with representativeness [10], the results of such studies are inconclusive. As yet, little is known about the process by which individuals do or do not manage to adapt following surgery.

Employing qualitative research methods to this area would increase understanding of the experiences of those who receive BS, which may lead to an improved understanding of the factors associated with successful and unsuccessful outcomes. Currently there is limited qualitative research examining the experiences of individuals following BS. From the published research, it seems that there are some studies which mirror what has been found in quantitative research; such as improved physical function [4], quality of life [5] and psychological function [6]. For example, several qualitative papers highlight numerous positive experiences of having BS, such as; weight loss, improved confidence, psychological wellbeing and quality of life [11-14]. Reviewing the qualitative research that has been conducted, it seems that people's experiences of BS are often complex, with various factors being highlighted as important with regards to individuals' experiences of BS. For example, across the literature, there is evidence that control is an important and multifaceted issue, which seems to stem from a tension between individual's perceptions of internal and external modes of control [11]. Additionally, there is the perception that BS does not address the underlying cause of obesity, which highlights that there are unresolved psychological factors that continue to trouble individuals post surgery [11-14]. The issue of the function of the problematic eating behaviour and, more specifically, emotional eating, has also been identified as a potential difficulty for those undergoing BS in both qualitative [8] and quantitative research [11, 12]. One qualitative study has explored individuals' experiences of replacing eating behaviour with other harmful behaviours such as substance abuse [12], which is also addressed less directly by LePage [13] .

Overall, the qualitative research to date, although sparse, appears to be building towards a complex concept of what may be involved when individuals receive BS. The quality of the published studies is varied. For example, one study failed to link

any of the results to theoretical constructs or previous research and, although interesting, was lacking in scientific grounding [13]. As a result of this, the author failed to connect their findings with those of other studies. The majority of the published qualitative studies have been conducted by Odgen and colleagues, which has allowed for the development of a model of control and BS outcome. This model posits that there is a paradox of control, whereby individuals view the surgery as an external force taking control for them, which enables them to have an increased sense of internal control [11]. Such information is potentially highly pertinent for service providers but further research is required to better understand the role of other factors that have been linked to outcome, such as emotion regulation behaviours.

The changes required to make BS a success are not straightforward, they can require life-long elimination of certain foods and eating practices that are outside social norms. For many, the changes required following BS are the specific behaviours that they have been struggling with and have led them to require surgery. To date, there has been no research specifically focused on exploring how such changes are perceived by individuals and how changes are addressed. Identifying what individuals perceive to have changed following BS and how such changes occur, could be valuable information and could be used to enhance information provided to patients and tailor interventions.

The overall aim of this study is to explore the experiences of individuals who have recently undergone BS. The specific objectives are to understand what individuals perceive to have changed following BS and how they made such changes. In addition, as EE has been found to be one factor linked to BS outcome and since EE is a type of emotional coping, the ways in which individuals cope with emotional distress following BS will also be examined. This will include the exploration of whether individuals experience changes to emotional coping and if so, how they perceive such changes have occurred.

Methods

Design

This study utilised a qualitative design, employing an Integrated Phenomenological Approach (IPA). Due to the lack of research in the area, specifically when examining patients' experiences of what changes post surgery, it was deemed that a qualitative and specifically IPA approach, would be the most appropriate and clinically informative way to explore the research aims [14].

Participants

All 39 patients who underwent weight loss surgery within NHS Tayside Health Board were invited to participate in this study, 15 (38.5%) responded and 10 attended for interview (25.6%). Of those who responded, 13 (86.7%) were female and 2 (13.3%) were male, however, only one male respondent contacted the author to arrange an interview but did not attend. All 10 participants were therefore female.

The NHS Health Board accessed for the purposes of this study gained funding for BS in March 2010 and recruitment was conducted between February and April 2012. Therefore, the author could be confident that participants' time since surgery would not exceed 2 years. For this reason, no restrictions were made with regards to the length of time post surgery. Participant demographic details are highlighted in Table 7.

		Mean (range) or Percentage
Gender		100% Female
Age		47 (36-54)
Time since BS (Months)		10 (5-15)
Type of BS	LAGB*	30%
	Gastric Sleeve	70%

*LAGB = Laparoscopic Gastric Band procedure

Table 7: Participant Demographics

Interview Procedure

Participants were interviewed at various NHS sites. All interviews lasted between 47 and 122 minutes, with a mean duration of 70 minutes (SD= 27 minutes). Interviews were recorded using a hand held digital recorder. A semi-structured interview schedule was designed to assist interviews without creating differences between interviews or necessarily guiding responses. Once complete, all interviews were transcribed verbatim by the author and any identifying information was removed.

Analysis

Data were analysed using IPA and was in accordance with IPA guidelines [14]. The author became immersed in the data through the transcription process and then reading and rereading the transcripts. The author analysed each transcript sequentially by making initial notes that were then developed into broader themes. Once themes began to emerge, the author developed connections between themes, drawing on both clinical experience and knowledge of psychological models and theories, along with clinical experience. Once this was completed for each transcript, comparisons were made, from which a set of superordinate and subordinate themes emerged.

Supervision was sought from experienced researchers; one of whom has published several qualitative studies using IPA¹¹. Supervision was used to ensure reliability and validity of the transcription and analysis process. Respondent validation was sought to further validate the analysis process. Participants were invited to discuss the results with the author. Of the 10 participants interviewed, 6 discussed the validity of the themes with the author and fully agreed with the themes that emerged.

Ethical Issues

Ethical approval was gained from a Local NHS Research Ethics Committee and all practice throughout the study was in accordance with current professional standards.

Results

The aim of this project was to understand what changes occur following BS, with a particular focus on emotional coping and how individuals perceive such changes to

¹¹ Dr Zoë Chouliara

have occurred and how individuals cope with emotional distress. In relation to this aim, three superordinate themes emerged through analysis, which are; Surgery Outcome, Changing Views of the Self and Coping with Emotions. Within each superordinate theme, lay subordinate themes, which are illustrated in Figure 2.

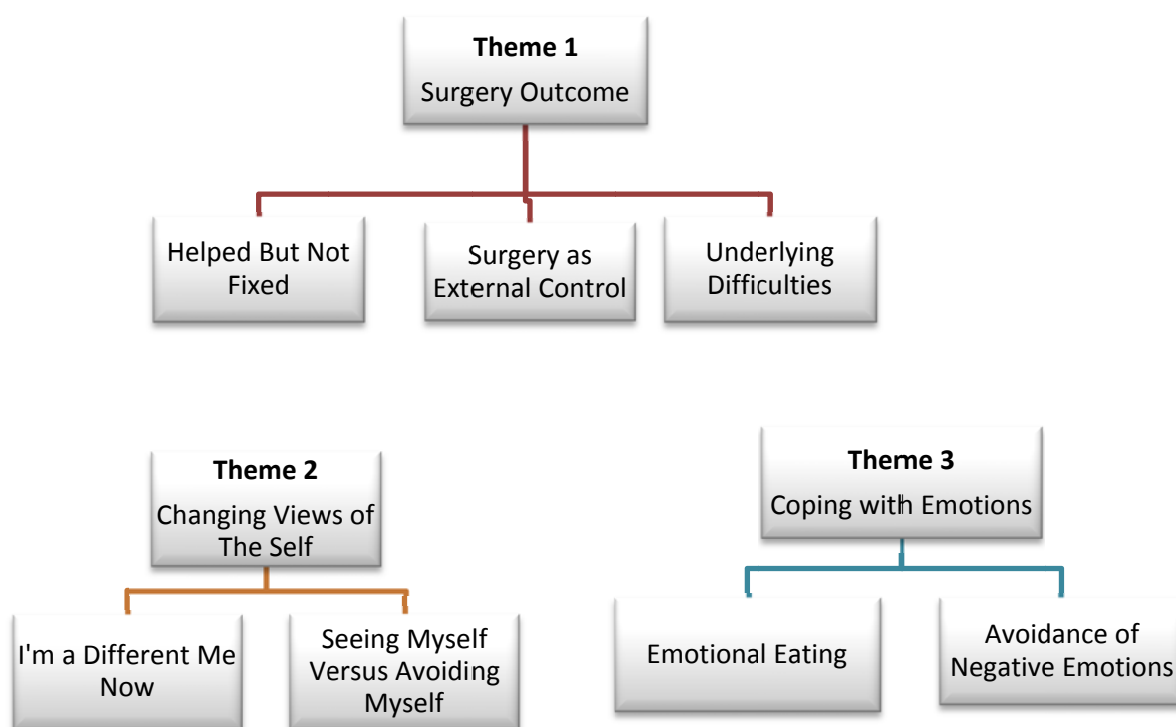


Figure 2: Diagram of Superordinate and Subordinate Themes

Theme 1: Surgery Outcome

When discussing their experiences of what had changed following BS, participants spoke at length about the various positive outcomes following surgery, how they perceived such changes to have occurred and the areas that continue to be a problem, which was grouped into the themes of ‘Helped But Not Fixed’, ‘Surgery as External Control’ and ‘Underlying Difficulties’.

Helped But Not Fixed

Participants all described various physical, cognitive, psychological and interpersonal changes which occurred as a result of surgery. The majority of such changes were described a positive way. However, alongside discussions of positive outcomes following surgery, there was also an implicit and explicit universal theme

of ongoing problems, particularly with regards to eating and the relationship with food. This dichotomy between the problem being 'fixed' and the problem continuing is encapsulated in the theme 'Helped but not fixed' and is illustrated by this quote from participant 3;

"So once he'd [the surgeon] done it, then I felt happy and I still feel happy and I've, today, until today I've lost just over 4 stone so, it's not like it's not doing anything but, psychologically, I still want to eat."

(Participant 3)

Participants talked about an ongoing battle and fight with food; that they continued to desire food, which was something surgery did not or could not resolve for them.

"I would say that up here, I still want it. I still have to fight with myself all the t...I'm still thinking 'oh god Easter Sunday, there's going to be Easter eggs'"

(Participant 7)

For some, there appeared to be a deflated acceptance that their problems, which had not been resolved by the surgery, were enduring in nature.

"Well you know if I could just get to grips with my issues with food, as I say, they're a lot better than what they were, but if I could, I don't know...a magic tablet, if someone could just clear your mind [laughs] that would be brilliant. But em, I just think well I'm always going to have these issues, I'm just going to have to try and fight against them you know?"

(Participant 9)

In summary, participants all spoke of some benefits following surgery but also explicitly described experiencing, at least some degree, of an ongoing battle against an unwanted desire to eat.

In addition to this explicit ongoing battle, there was also some indication that the changes resulting from surgery created a new set of possible challenges for participants, which participants themselves did not appear to acknowledge and were therefore more implicit. Participants spoke of many adaptations they had made following surgery, which were described in a positive way. This included both behavioural and cognitive changes relating to food and eating. For participants, an

outcome of BS was that a move towards a more functional view of food and eating. This change in thinking style is illustrated in this quote from participant 6, where she describes a change in how she thinks about the food she eats.

“I no longer think about it [food] as I said, 24/7 and when I am making something, I'm just thinking about making something for energy rather than making something to sit down and enjoy”

(Participant 6)

Participant 6 is therefore no longer viewing food as a pleasurable activity and indeed many participants expressed a change in attitude towards eating and food in this way. Although this change has enabled participants to restrict their overeating, it could also be viewed that such changes could make eating in a socially acceptable manner troublesome and anxiety provoking and could lead to further eating difficulties.

The issue of no longer eating in a socially acceptable way is indicated in the following quote from Participant 6, where she describes how she no longer enjoys eating in restaurants and prefers to eat at home;

“it would be easier for me to sit down and have something to eat at home that I'm going to enjoy rather than going out and saying right ok can I fish but can I have it steamed and can I have it...you know, so rather than doing all that you know.”

(Participant 6)

Many participants echoed this experience of now feeling more comfortable eating at home, when they can control their food either by measuring quantities or using smaller sized utensils. Such eating behaviours are described in the following quote from participant 8;

“I do the small tea plate thing, it's visual and I use a tea spoon or a small fork. I have a certain routine with that now and I can tell quite quickly whether it's too much or not”

(Participant 8)

Participant 4 acknowledges that by purchasing portion size packs of cereal, she is spending more money but she views this as being a worthwhile cost to prevent her from overeating.

“I know it's cheaper to go buy a big box of special K but convenience...if I was to take a big box I wouldn't get the scales and get the right weight and what not I would over feed myself, I know I would and that's why what I decided to do is get the little boxes. It's portion control”

(Participant 4)

Furthermore, participants who described having reached their target weight, also described continuing to use such behaviours. Both participant 5 and 10 were of healthy weight but both described continuing to use behavioural strategies such as food diaries, using small utensils and measuring meals to lose more weight. As expressed in the following quote;

“I weighed all my food and kept a food diary, that's how I had the success of 8 and a half stone and now what I do is, if the weight loss isn't, if I'm not losing weight, I go back to keeping a food diary. It reminds me of what portions I should be having. I keep it for a few weeks... and then I get my eye back in for how much it is and how much I should be eating. So weighing food has been a way of life for me for a long time.”

(Participant 4)

Therefore, although the outcome of this change is desirable and therefore one that participant's view as being positive, it does prohibit them from participating in an aspect of social activity, which can often bring pleasure. Furthermore, eating in such a ritualised and restricted way, could also be viewed as somewhat disordered in nature, could create difficulties for individuals.

Surgery as External Control

A strong theme across all participants, when discussing what changed and how changes were made following BS, was that of control. Participants spoke of having a desire for something to take control for them and a sense that surgery did this for them, at least in part for some.

“So I knew the volume, if I could have the volume restricted, I knew I would be given a good chance to then sort the rest out but I needed the volume, so that I could get the weight off, to then start feeling better, to take, for something else to take control of that for me.”

(Participant 8)

When discussing how participants were able to make certain changes to their eating behaviour, the concept of 'I can't' appeared to resonate from participants, highlighting that participants perceived to now have little internal control over their eating behaviour. Following BS, the majority of participants felt that they had no choice over their eating behaviours; that they could not eat the same way, or at least to the same degree as they had previously. The process of surgery had taken control and removed choice. The concept of 'I can't' and sense of no longer having control over intake, is illustrated clearly by participant 2, who describes a continuing to desire for certain foods but now believes that she cannot have them.

"now I can't have a KFC, I can't have a McDonalds, I just basically can't have it. Sometimes, uh, sometimes I'd just love a bacon buttie, sometimes you just want to have a bacon buttie but I'll go I cannae. Simple as"

(Participant 2)

There was very much a perception of something taking over their control. This lack of choice and something external from the self taking control of their food was viewed as something positive to participants. For example, participant 1 described her surgery as disabling her from eating as she had done previously, which she feels helps her control her intake of food.

"it's about control and how much you can eat and what you are capable of eating. Whereas when you're dieting by yourself and your stomach's just normal you can continue to eat. You're dieting. Whereas when you've had the operation you just physically can't so it's, it's that helps you. It helps you to try control what you're eating"

(Participant 1)

This control was universally discussed in a positive way, as illustrated by this quote from participant 8, who described a reduction in anxiety now that she feels she has less control over the quantity of food she can consume.

"I think the anxiety's far less because I don't have the anxiety of overeating because I can't, physically cannot, it's restricted"

(Participant 8)

However, not all participants were pleased with the degree of control obtained from surgery. Participant 3, made comparisons with her own experiences to that of others and described wanting the level of control others had so that she would be no longer able to eat certain foods.

“A classic example of this operation is, there's a lot of things people cannot eat for life. Now, since I've had it done, I find there's not one thing that makes me want to throw up. There's not one thing that I cannot eat. So where, was, you know what I mean? I've heard like, I keep in touch with some others, and they're like "ach, I just can't eat much today, I feel sick. I just keep throwing up today". I haven't thrown up since I had the surgery! So it's like, hmmm.”

(Participant 3)

Paradoxically, it seems that this concept of surgery taking control, of something external to the self having control over quantity and type of food also gave participants a feeling of being in control themselves.

“I've never had control over food, it always felt like it was controlling me. And for the first time that I can ever remember I had the control”

(Participant 9)

The paradox of BS taking control, which in effect provided participants with a sense of control that was being simultaneously removed and given by BS, was embedded throughout participant 8's interview. She spoke at length about feeling her eating behaviour was out of control but that surgery has taken control for her, which has resulted in her generally feeling more in control,

“My emotions have hugely improved because I feel in control for the first time in ever...ever, with my weight”

(Participant 8)

Participants felt more in control because BS had taken control of this aspect of their life that they previously could not.

Underlying Difficulties

Although participants were all generally positive about the changes that had occurred as a result of BS and expressed positive perceptions of the care they had received, for most participants there was something additional to this; that surgery had not resolved the underlying cause of their eating difficulties. Some participants had a clear opinion of what needed to change, with a view that something in the mind needed to be ‘fixed’.

“Now, (laughs) you've done the surgery but you've not fixed the mental side of it because it's the mental side that's still driving the person to, to be... with despair there's... (pause) yes, it's great losing the weight, and you feel a bit better and you feel like you can move better and more options are available. That's great but it's still not enough to drive me to the extent I want to be ten stone or nine stone, do you know what I mean?”

(Participant 3)

This concept of something still needing fixed was articulated by six of the participants, who expressed opinion that underlying psychological difficulties were at the root of their eating problems. Such underlying difficulties related to childhood experiences of abuse and neglect, with a universality of emotional neglect. For example, participant 3 linked earlier traumatic experiences to her current weight problems and although she does not consciously think of the experiences, she describes them as influencing her on a daily basis.

“I have several significant things that happened that I don't think about on a daily basis but they're there, they are my driving force on a daily basis”

(Participant 3)

In a similar vein, participant 8 detailed an extremely neglectful and abusive childhood and has connected the out of control feeling she experienced as child, with the development of her over eating behaviour. She has become aware that her eating behaviour has developed from her attempts as a child to have a sense of control over her chaotic life. Her eating behaviour is, therefore, a maladaptive coping strategy, serving a powerful function, which is incredibly difficult for her to change.

“my family are quite a difficult background, so I think that's probably where a lot of the control, the issues that I have with food, is connected with that. I know that. [section omitted for brevity] everywhere I went, food was an issue because there

wasn't enough of it. Although you were never hungry, like starving hungry, not like that, but there was never enough of it. Always a worry where it was coming from. [section omitted for brevity] because it was the only thing we could control in a chaotic situation. Whereas I just ate it if it was put in front of me because I didn't know when the next one was coming."

(Participant 8)

Those participants who made links between their underlying difficulties and their weight issues, spoke of a desire for help, such as psychological therapy, for their ongoing underlying difficulties. Participant 3 illustrates this point by using an analogy of a broken car and requiring someone qualified to fix the specific problem.

"something in the brain that to me's not right, it's not right, it needs...if it was a motor car then you would take it to the mechanic to get it fixed...and stop all the issues and I just think well I can't fix it by myself because I have no clue how to fix it so obviously I need help to fix it and [Dietician] wouldn't be qualified in that field to fix it"

(Participant 3)

Participant 3 was later more explicit in her opinion that she requires specific psychological help for her difficulties relating to her unresolved traumatic experiences, which she feels unable to deal with on her own.

"I think the other thing is, you try not to think about all these things that have happened. And you certainly don't start thinking of them and going into detail and combing through them because it's not something I think that I can sit down and go, 'ok, this happened and this happened and this happened'. I wouldn't sit...you know what I mean? that's somebody, like the head doctor for example, they would know which areas they're going to be sitting targeting the questions to ask, to get those areas to find out what psychological aspect is... but em, for me, it's not something I sit and think about., I just think I'm ok., rape happened, that's it. And then, you know, but yeah. Somebody who's trained in that, they know what to do, to be looking at, so..."

(Participant 3)

Two participants spoke of receiving extensive psychological therapeutic input, which was not specifically focused on their eating behaviours or weight difficulties but both discussed how they have used the techniques learned and insight gained, to manage their eating difficulties. For example, participant 8, had received treatment from various psychological therapy services prior to surgery but sought further treatment privately following surgery. In this quote she describes now understanding her

difficult childhood experiences in a way that is enabling her to change her maladaptive coping responses.

“I thought it was just me and too many people jump on the bandwagon ’oh it was the trauma when I was a child’. The counsellor is helping me link that, perhaps in a more productive way than I have in the past. I’m not interested in self pity, I want proper constructive comments that help me to move forward because I’ve never been that kind of person. It’s not productive for me.”

(Participant 8)

Participant 4 has been in contact with mental health services and had received Dialectical Behavioural Therapy (DBT) for Borderline Personality Disorder prior to her surgery. In this quote, she had been discussing how she previously ate in response to emotional states and when asked if this had changed following surgery, she described how she has learned to use the adaptive coping skills she developed through DBT, to manage her emotions, rather than resort to her previous maladaptive coping response of over eating.

“I get to the stage where I use the distraction techniques from DBT. I make jewellery and I do beaded jewellery, some of it is very intricate, [section removed for brevity] and at the same time as reading, using the distraction in as much as, if I feel crappy don’t put a sad movie on put a funny one on...yeah I’m finding the distraction one brilliant in as much as if I’m having days where I’m like ughh, bah humbug, we all get there and yes I can hit major lows, picking myself up dusting myself down, getting into house work or jewellery, book, going for a walk.”

(Participant 4)

There is a strong sense, even for those participants who did not highlight a desire for psychological therapy specifically, that something has been missing in the help received for their weight management difficulties.

“I mean I joined my first diet club, I think I was about 10 or something at the time and I’ve been to all of them. Weight Watchers more than once. And they all work, in their own way they all work and you do lose a lot of weight but it’s the keeping it off. That’s the problem. It’s sustaining that. And I never felt like there was any medical back up for that. I still think that people really don’t understand.”

(Participant 7)

As highlighted throughout the theme of ‘Underlying Difficulties’, participants articulated feeling that there was an element to their eating difficulties that had not

been completely resolved by surgery and that this element was related to past difficult experiences. Participants expressed a desire for help with this, some knowing specifically that they required psychological help, some having already received this help and others being less clear with what type of help they would require.

Theme 2: Changing Views of the Self

When discussing the topic of what had changed since BS, participants spent time reflecting on how they view themselves to have changed. Participants' views of change, related to the self, centred around two subthemes of; I'm a Different Me Now and Seeing Myself versus Avoiding Myself.

I'm a Different Me Now

Throughout the interviews participants discussed how they viewed themselves and related to their perception of their 'self'. Participants were asked directly to discuss any ways in which they have changed following BS and one emerging theme related to a changing perception of the self. Many participants referred to constructs of the self in ways that emphasised quite a significant change, as though they had lived a different life prior to weight loss or had been a different person. For example, the following quote from participant 9 highlights her experience of feeling like she has changed to the extent that she is now leading a new life.

"it's like leading two lives and it's like the old one is gone now, and this is the new life and I can't even remember back to when I was like this before; it was such a long time ago"

(Participant 9)

This concept of having a new life is further emphasised in the following quote from participant 1;

"Well, the whole...my whole, ehm, attitude has changed. Ehm, with have having lost weight...Ehm, the confidence, the (pause) just everything in general being able to do things you couldn't do is just...everything has changed is different, different life almost"

(Participant 1)

However, participants also stated that they were back to the ‘old me’; the self that existed before the weight had interfered so drastically with their life.

“It feels good that the old me's coming back. Ehm. Because...you know, I used to be, you know, a very bubbly, VERY bubbly person and that over the time, disappeared. I lost who I was. Whereas now, I seem to be getting that back. I mean, I was out 3 weekends in a row there, I've never been like that. You know. For such a long time you know. So... good feeling.”

(Participant 2)

The sense of a return of the ‘old me’ is further echoed in the following quote from participant 6;

“So all that's changed and I've kind of gone back again 10 years, I've gone back to feeling about myself, the way that I did feel 10 years ago, you know?”

(Participant 6)

Within this theme of changing perspective of the self some participants simultaneously felt like a new person and their old self. For participant 9 this ‘new me’ versus ‘old me’ debate occurred during the interview.

“I'm still the same person... Well, I always thought when I was big, I was still a human being and some people when you're really big they don't really treat you like a human being so that's kind of strange, but I suppose I'm not really the same person if I think about it now.”

(Participant 9)

Whether the current self is something completely new or the return of something from the past, there is clearly a significant change for the participants in terms of how they view the self. This change is positive and appears to be linked to increases in confidence and an acceptance of the imperfect self, which for participant 4 in particular, felt recognition of who she was for the first time in her life;

“I just I suppose for the first time in 45 years I feel like me”

(Participant 4)

Participant 3 was the only participant to not describe experiences of a changing self but also described having the least positive outcome following surgery.

Seeing Myself versus Avoiding Myself

Within the superordinate theme of Changing Views of the Self, participants spoke of two conflicting phenomena; one of being able to see and accept the self and the observed changes, in contrast to one of avoiding looking at the self and having difficulty recognising and reconciling the weight loss and changed appearance. This is understood within the emerging theme of Seeing Myself versus Avoiding Myself. This quote from participant 9 highlights this theme, in which she describes having previously avoided seeing her own reflection but now owns a mirror and has a positive experience when looking at her reflection.

“I've now got a full length mirror. I haven't had a full length [for 30 years] I would never in fact look in a mirror at all, any kind of mirror was always a... I hated it. And if you're... if I was in town doing some shopping and you know, the shop windows and you happen to... for a second, I think 'who is that?', and then it dawned on me, it was me and things went downhill from there. So I have this mirror and em, I do look in it occasionally to see everything's ok (laughing) and that's strange in itself”

(Participant 9)

Looking at the image of the self seemed to be a powerful behaviour for participants and indicative of whether they were able to accept and like who they are.

“I started going to the gym yonks ago when I was so big and I'm like, don't worry about people laughing at you, you're fat, you're big but you're doing something about it blah, blah, blah. Now I go to the gym and I'm looking at myself and in the mirror and one, I'm LOOKING at myself in a MIRROR which is a massive achievement in itself”

(Participant 4)

When the previous quotes are compared to the following, this contrast of being able to look at and accept the self versus avoiding and rejecting the image of the self is striking. It is also clear that such concepts both continue to be concurrently held by some participants.

“I'm a year on and I still don't have a full length mirror at my house. I just look from here up.”

(Participant 8)

For participant 9, in her earlier quote, it is apparent that looking in the mirror is a new behaviour, which could indicate an improvement in the perception of the self following her weight loss. However, it is clear in this later quote that she cannot fully embrace her new self and in certain circumstances, continues to have difficulty accepting her image.

“sometimes, when I look in the mirror, the full length mirror, when I'm not in much clothing, I think 'Oh god, you need clothes on, right now' you know, but it doesn't look... it's not pretty.”

(Participant 9)

Participant 7's description, however, indicates that she continues to have difficulty accepting her appearance, to the extent that she actively avoids seeing any image of herself. This behaviour has persisted after her BS and weight loss.

“We've got a double-doored glass mirror as you walk out of the bedroom and I walk out facing the other way because if I walked out looking that way then I would see myself walking out and I, I know that I do it, I always turn my head that way when I leave the bedroom”

(Participant 7)

This contrast between acceptance and avoidance, seeing and not seeing is, at least in part, related to the dichotomy of accepting of the self with clothes on versus disgust at the self when naked, due to the common problem of excess skin. Many participants raised the issue of excess skin, although in itself, this did not emerge into a theme, it is linked with the perception of the self. Liking and accepting the self versus disliking and rejecting the self, is not a singular construct; both can happen simultaneously in an individual and are dependent on the context. This quote from participant 2 illustrates this dichotomy.

“Just, when I look in the mirror and something, you know, it's like, the amount of excess skin, the way it's all wrinkly and when you look in the mirror, you just think how can anyone... if, you know, if I was to get into a new relationship, how could anyone find me attractive with all this excess skin? So, you know, would it have been better, not that I'm saying I would've preferred to have stayed fat, because definitely not but you just think, what's the lesser of the two evils you know? Ehm. But certainly, I mean, I got measured for a new bra a few weeks back and I was looking in the mirror and I just hated how I looked you know. Although the confidence is

there when the clothes is on, when the clothes isn't on it's a different matter"
(Participant 2)

This following quote from participant 6 further demonstrates, a changing perception of the self, which when fully clothed, is towards a more positive, accepting stance. However, when undressed, a negative view of the self endures, which again is related to the problem of excess skin.

"I know with my clothes on, for a woman of [age], I look ok. I do. I know that. But in the past, at 25 stone if I'd gone on holiday with the kids and I was in a mutual changing room and everybody was getting changed to go swimming I would've just stripped off naked, naked doesn't bother me get changed, get in front of everybody if somebody wants to sit and stare, that's their business, I don't care. Now, I have a towel round me and I'll try go into a cubicle and it all hangs. I'm like a candle that's melted. I don't know why the fat fairy couldn't have taken my belly and left me some boobs because it's just flaps of skin and one thing how I've changed how I feel about myself is at my biggest, I still felt attractive. And my husband and I had a good sex life, now I feel less attractive with my clothes off than I did then. And I look at myself in disgust when I've got my clothes off."

(Participant 6)

Theme 3: Coping With Emotions

The issue of how participants coped with emotions was raised directly. Two themes emerged from participants' discussion around the topic of coping with emotions; Emotional Eating, which related to participants' descriptions of eating as a way to manage distress and how this has changed following BS and of Avoidance of Emotional Distress, which related to what seems to be another form of coping with emotions.

Emotional Eating

Although this is an area of interest of the author, to avoid leading participants, this was not explored directly in the interviews. However, this theme was spontaneously raised by all participants in response to being asked how they cope with difficult emotions.

"Sometimes I'll have some wheatabix and it's not that I'm hungry, it's that craving, it's really difficult. And it's not a craving as such really, it's an emotional response to

the anxiety that I felt earlier in the day. That will give me the instant relief by having the chocolate or whatever but then it's the punishment bit afterwards. It's a horrible cycle."

(Participant 8)

Participants varied in terms of the extent to which they ate in response to emotion following BS but for all but one participant (participant 5), this behaviour continued to some degree post BS. Participant 3 was particularly articulate in her description of how she used food to 'cure' her of her emotions.

"My mind is still bouncing...and it's like I just can't close it down and I can't get it to shut up...So I have to cure it somehow and I always believe I've cured it once I've eaten because as soon as I've eaten, everything goes away, the whole issues goes away, even though they're probably still there but well, they've gone for me because I've fixed my problem"

(Participant 3)

For participant 7, her description of emotional eating was almost affectionate in tone and highlighted that this response to emotions, all emotions, is reliable and constant. Her description of her relationship with chocolate is akin to a relationship with a supportive person.

"that's my cosy cover. I have a nice bar of galaxy and I'll feel much better... It's there if I need cheering up, it's there if I need to be rewarded, it's there if I'm bored, if I'm tired. It's just there."

(Participant 7)

Within the subordinate theme of Emotional Eating, participants also spoke of their inability to use this coping strategy to the extent that they had previously and how they have responded and adapted to this. For some there is a clear, conscious adjustment, a belief that this coping strategy is no longer possible and therefore there has been a process of developing alternatives. Such alternatives have been adaptive, non-avoidant styles, which have included sharing distress with others. Such conscious changes in emotional coping strategies are evident in the following quotes from participant 2 and participant 8. Both described a deliberate change towards asking friends for support during difficult times that would have previously led to emotional eating.

“Well before, I used to eat, ehm, now, ehm, I annoy my sister (laughs) text her, ehm, or I'll text my friends or whatever, you know, I just tell them how I'm feeling and you know, they'll either give me a phone or they'll text back... I think yeah, I think initially you do try to overeat but you can't, you physically can't so you have to think of other ways of 'how am I going to let the stress out?'. How you know, how, you know, how? Where as now I'm physically having to, I'm having to speak to people now. Whereas before I just, I would just wouldn't have.”

(Participant 2)

“I talk a lot more to my friends, something I didn't do much before. I face up to the issues of the anxiety I'm having and I let off steam with them. I use text quite a lot. I just take the time and talk whereas before I would just immerse myself with rubbish and watch TV in my pyjamas.”

(Participant 8)

Rather than adapting their emotional coping behaviour, some participants spoke of adapting the food that they used when emotionally eating, as a way to reduce the negative consequences of eating in this way. For participant 10, she continues to turn to food to cope with her emotions but rather than eating high fat foods, will eat a small piece of fruit instead. Therefore, the behavioural response to the emotion may be the same but the consequences of this behaviour will be somewhat different.

“I used to comfort eat before and that's when I would go for crisps and snacky things and if I'd had a bad day and things I would just sort of comfort eat. I don't do that the same. I'd maybe, I mean if I do, I try and eat things differently like an apple or a piece of fruit.”

(Participant 10)

Similarly, participant 3 uses low calorie and low fat foods when she eats in response to an emotional state. She views herself as still failing in a sense but, as she believes she is now making better choices regarding the type of food she uses when emotionally eating, she perceives this as an improvement to what she did prior to BS.

“I'll go and have a weight watchers em chocolate sundae. Because I made a conscious effort not to eat normal stuff, when I have it I'll have weight watchers products or maybe diabetic... trying to be good, so I'm going to fail but I'm still trying to be good.”

(Participant 3)

However, not all participants described this process of adapting their coping strategies or food content and for some, the struggle to refrain from emotional eating was apparent. In the following quote from participant 3, she describes her continued experiences eating as a means to cope with emotions. She also describes being unable to understand how other people can manage an emotional situation without resorting to eating, perhaps suggesting she is unaware of any alternative coping strategies.

“I’ll be angry, I’ll be raging, shouting and screaming and what have you, but the bottom line is food. You know, some people, I always think, when you see people who’ve had a trauma or something happened and all of a sudden you see them losing weight because they’ve not been eating? I mean, how could they not eat?! The first thing I do is... they could sit with an empty fridge and I’ve got a full fridge, do you know what I mean? And it’s only, like I say, the fact of the operation that I can’t sit and do that...I can’t control it and I will shovel it in anyway, and I might only get two mouthfuls and I’ll be full because I’ve not long had something. But at least I have had that”

(Participant 3)

The restriction on food intake from BS has, for some, been a prompt to develop alternative adaptive emotional coping strategies, such as using the support of friends and family. Other participants continue to eat in response to emotions, however, the food consumed in response to the emotional state has changed and therefore, the consequences of this behaviour are less problematic. However, for some participants, emotional eating has continued with the only difference being that the restriction provided by the BS has reduced the quantity and perhaps calorific value of the food consumed. As summed up concisely by participant 2;

“Maybe I still emotionally eat, it’s just that I can’t emotionally eat to the degree that I was before”

(Participant 2)

Avoidance of Negative Emotions

When discussing how they cope with emotional distress, participants implicitly and explicitly expressed their use of avoidance and denial in response to emotional distress. This emerged into the theme of Avoidance of Emotional Distress. Participants provided several examples of situations they have avoided in order to

save themselves from feeling distress, such examples were from both pre and post surgery.

For participant 7, her avoidance of emotional distress was apparent in her avoidance of looking at her reflection and trying on new clothing. She wanted to avoid the possible upset that would ensue, should she dislike what she sees.

“I can't believe that the truth might be something that I'd like. What's the point in looking in the mirror because I know you're not going to like it and why bother sending for a size 18 because I know it's not going to fit so why upset yourself? Let's just not bother.”

(Participant 7)

For participant 3, the avoidance was more related to the expression of emotions and a fear that once she let her emotions show, something would be uncontrollable.

“Inside me I'm like, ok, I'll keep a lid on this, it's like the pot's boiling but you've put the lid on, you're going to maintain it and however long I maintain it, it could be days, it could be a week but that lid's coming off”

(Participant 3)

Participant 2 discussed avoiding her emotions throughout her life. She explained that she was not encouraged to express her emotions and avoidance of emotional expression was modelled by her family.

“Our family's not one for talking. We don't hug, we don't cuddle so you know. That, we've been brought up to hide my fee...not hide my feelings but just get on with it. You know so. That's what you did so, I do struggle, talking about things at time and because it's, you know, it's like why am I feeling like this?”

(Participant 2)

Subsequent to surgery, participant 2 realised she could not continue to cope with her emotions in this way and has consciously learned to be more expressive and less avoidant of her emotions.

Participant 1 described an awareness of using avoidant coping strategies and viewed this as a positive quality.

“I also have a ehm a I've always had a good ability, if something happened that's stressful I think I've kind... like don't think about it. So it doesn't bother me...if I don't think about it, it doesn't bother me”

(Participant 1)

These quotes from participants 7, 3, 2 and 1 demonstrate explicit ways in which participants avoided situations of emotional distress, and denied their emotional states as a way of coping.

This avoidant style of coping was also present implicitly throughout the interviews. To varying degrees, all participants demonstrated some level of emotional avoidance during their interviews. For example, several participants discussed childhood abuse during their interviews but with little or no affect, indicating that a level of emotional avoidance or detachment may be occurring. In addition, one participant indicated at the end of her interview that she had been anxious about attending because she knew she would discuss issues that she purposefully did not think about and she was concerned about the impact this would have. Other participants appeared to have difficulty discussing emotions and emotional responses. This was the case in particular for participant 10, who provided very little information relating to how she managed her emotions pre or post BS. This is evident in the following quote, where the interviewer is attempting to explore the participant's experiences of coping with emotions and emotional eating;

Participant (P): I did I used to comfort eat definitely and I don't know if it's too early to tell if I'm going to do that again. If I do I try not to eat too much

Interviewer (I): so, if you have the same emotion, when before you would comfort eat, what emotion would it be, what way would you feel when you would comfort eat before?

P: I would feel better if I eaten something obviously

I: but before you ate, the, what way would you feel that would want you to go and comfort eat

P: I would start thinking about food

(Participant 10)

It is difficult to determine if participant 10 was avoiding discussing emotions or whether it was something of which she perhaps had little awareness or difficulty articulating. There is however, evidence of some difficulties at an emotional level.

The subtheme of Avoidance of Negative Emotions seemed to be a strong theme throughout the interviews, which was linked in part to the subtheme of Emotional Eating as both were described as ways of responding to emotional distress.

Discussion

The aim of this study was to understand what changes occur following BS, how individuals perceive such changes to have occurred and how individuals cope with emotional distress. The three superordinate themes identified through analysis were; Surgery Outcome, Changing Views of the Self and Coping with Emotions.

What Changes Following BS?

Participants highlighted several areas that they considered to have changed following BS; how food is perceived and consumed, experiences of control and how the self is perceived. It seemed that for some, following surgery, there was a cognitive change towards viewing food in a more functional way; as something from which to obtain energy rather than pleasure. Other researchers have implied that for BS to be a success, a cognitive change is required in order for the necessary behavioural changes to occur [11 & 15], which may be similar changes as described by participants.

There was also considerable focus on the behavioural changes and adaptation which followed surgery. Some of the discussed changes would be necessary adaptations as a result of the physical restrictions brought by surgery, such as having small and regular meals and avoiding certain food groups that are no longer tolerable. However, other adaptations were more focused on achieving weight loss goals, such as weighing and measuring food, using smaller eating utensils and avoiding food made by others'. Such changes were described in a universally positive way by participants.

Although the behavioural and cognitive changes described were viewed as positive by participants, some of the beliefs and behaviours described are concerning as they could be viewed as highly restrictive and pathological in nature. For example, some participants mentioned feeling anxious about eating in restaurants or with friends, when they were unable to control their eating to the same degree and will therefore avoid doing so. In addition, participant had adopted behaviours that would be socially unacceptable; such as using small eating utensils and weighing food. It seems that, although participants had found a way that was enabling them to lose weight, such changes also created an additional problem for participants, in that eating in a 'normal' way was difficult and anxiety provoking. Such anxieties about eating and restrictive eating behaviours are similar to those often identified with individuals with eating disorders such as Anorexia Nervosa. Although limited, there is some research indicating that following BS, the development of a restrictive type of eating disorders is not uncommon [16 & 17]. That participant's did not appear to view this as an issue perhaps suggests that any problems arising as a result of BS, are not as troublesome as the those caused by being morbidly obese and that the benefits of weight loss outweigh any new difficulties. However, it is perhaps an issue for service providers to be mindful of when making suggestions as to how patients can support their weight loss goals and make adaptations following surgery as 'helpful' strategies can become restrictive and problematic.

Participants also highlighted changes to how they perceived themselves, which although generally was positive, also carried with it a dichotomous theme of feeling better with clothes on but worse with clothes off. Within this theme lay the issue of excess skin, which was clearly a difficult topic for participants and seemed to give BS outcome a somewhat bitter-sweet tone. The psychological consequence of having excess skin is a much understudied area. There are, however, surgical, body-contouring procedures available to remove excess skin. Many participants were aware of this and described feeling hopeful they would reach the service's criteria for this surgery (maintaining a BMI of 27 or less for 1 year). The available research does suggest that excess skin is a common problem affecting body image following BS [18, 19]. Teufel, et al., [18] reported improved body image following BS, compared to that before surgery but post BS body image was still reduced when compared to

norms. It seems, however, that body image may improve further following body contouring surgery [19].

How are changes achieved?

As to how such changes were achieved, participants appeared to perceive BS as providing a sense of control, which was a catalyst for the subsequent changes. With the dramatic weight loss in the initial weeks following BS, participants experienced a cognitive shift towards hopefulness, which has also been identified in other research [13]. Within the subordinate theme Helped but not Fixed, participants described changes to their thinking style, which moved from 'I can't' to 'I can', which linked to increases in motivation and activity. This shift in thinking could be understood in terms of a change in the perception of control. It seems that prior to surgery, participants felt they did not have control over managing their weight but BS provided them with a sense control, which instilled hope and led to increased levels of motivation. This sense of control could therefore be the catalyst for change.

It is clear however that participants' viewed control as being external to themselves; that something outside of them has taken control of eating for them, which appears to link to the concept of self efficacy. Self efficacy refers to an individual's belief that they are able to control their own behaviour in ways that will enable them to overcome certain challenges [20] and has been attributed to positive BS outcomes in other research [21]. It seems that although participants reported an improved sense of control, they did not view this as being the result of their own actions and instead credited this to the BS. This suggests that participants' continue to have a reduced sense of self efficacy with regards to their weight management and eating behaviour following BS. It seems, however, that participants underestimate their control and own contribution towards their weight loss. All participants provided many examples of changes to their behaviour and cognition. Such changes are not a direct result of surgery but instead are changes made by the individual. This apparent lack of self efficacy following BS could be a concerning finding as research examining factors associated with weight regain following non surgical weight loss treatments have found that a lack of self efficacy and underestimation of control over weight loss relate to weight regain [22].

The findings from the current study relating to the theme of control, parallel that of the findings of Ogden and colleague's qualitative research; that the removal of control created by BS paradoxically provides a sense of control for individuals [11, 22]. It seems that the concept of control and how individuals' perceive their own ability to control their eating behaviour is important to BS outcome and warrants further research. One suggestion for future research could be to compare pre and post surgery levels of self efficacy, something lacking in the Batsis, et al., [21] study. It may also be worthwhile to qualitatively compare people's experiences of control at pre and post surgery time points and examine any differences between the perception of control between those with successful outcome and those with less successful outcome.

Emotional Coping Following BS

In addition to change, participants also highlighted issues of emotional eating (EE) and their perceived ability to regulate their own emotions. EE can be defined as an attempt to regulate emotional affect through eating behaviour [23]. EE has been linked to less successful outcomes following BS [10, 24, 25] and in non surgical methods of weight loss [15]. The findings from this current study therefore parallel that of previous research; that EE is common following BS and that it is an ongoing challenge for individuals to manage this behaviour. Furthermore, the results from this study also mirrored results from previous qualitative studies in the area; that EE continues for many following BS and can be problematic [11]. In addition, in a qualitative study with non surgical weight loss treatment participants, Byrne, et al [15] also reported an association between using food to regulate emotions and avoidance of negative affect in those who had regained weight.

The link of EE to the subordinate theme of Avoidance of Negative Emotions may highlight that participants' possess a lack of emotional coping strategies. This requires further research and development to determine the nature of this link and whether it is present in other patients. However, if it is the case that many BS patients are limited in their emotional coping skills, psychological intervention may be necessary to develop emotional coping prior to surgery.

The theme of emotional coping seems linked to the theme of 'Underlying Difficulties', in that participant's spoke of an ongoing problem managing their emotions and many linked this to underlying psychological difficulties that had not been addressed by BS and continued to cause difficulties. This would fit within a model of viewing morbid obesity as being a symptom of underlying psychological distress, which is a theme highlighted in previous research [11]. Ogden et al., [11] completed a qualitative study with individuals who had experienced failed BS and the theme of 'Neglected Mind' emerged from the data. This theme parallels the theme of 'Underlying Difficulties' in the current study and raises the same issues of participants believing the underlying cause of their obesity had been neglected. This highlights the issue that morbid obesity can be the result of a psychological problem and from qualitative studies, it is apparent that patients are aware of this and are requesting assistance with this, which further emphasises the need for psychological treatment for those requesting BS.

This study possessed several limitations that should be considered before any conclusions drawn. As with most qualitative studies, this research used a relatively small sample of participants and thus findings cannot be generalised to this group as a whole. Related to this is the issue of homogeneity. For IPA research there is a recommendation that participants are a homogenous group [14]. It is possible that the differences found between BS procedures, may attribute to differences within this group, thus threatening the groups homogeneity. For example, the majority (70%) of participants for this study received a gastric band procedure, with 30% receiving the Laparoscopic Gastric Band (LAGB). There is research to support the view that LAGB procedures are more likely to lead to unsatisfactory results [25]. In addition, some participants had received more than one form of BS, for example a gastric balloon followed by a gastric sleeve, whereas others had only received one procedure, which again may account for differences of experience. Another possible factor that may have influenced the data was that the study was conducted by a psychologist. Within the service accessed for this research, psychological provision has historically been unavailable and therefore this may have been viewed as a possible route for psychological support. As previously discussed, several participants highlighted underlying difficulties and a perceived need for

psychological support, which may have motivated their participation and influenced some of the information provided. As half of the participants were referred for psychological input by the author following interviews, this further supports this reservation.

Conclusion

In summary, this qualitative study examined the experiences of individuals following BS, with the aim to understand what changes take place following surgery, how such changes were made and how people coped with emotions following surgery. Participants highlighted changes in multiple areas that included cognitive, behavioural, physical and emotional elements of change. The key factors that appear to be involved in these changes are the instillation of hope, and perceived changes to control. The theme of EE was also of importance to participants. A strong theme of a changing perception of the self also emerged from the data. This appeared to be linked to changes in appearance and an improved acceptance of the new appearance. However this theme was in parallel with ongoing difficulties of being able to accept the new appearance which was heavily linked to a dislike of the appearance of excess skin. It seems that with regards to emotional coping, the use of EE is common, particularly before surgery and for many, aspects of EE changed after BS. For some, the quantity of food consumed when emotionally eating has reduced and for others the development of alternative coping strategies has resulted in a reduced use of EE. However, it seemed clear that EE was a continued problem that required an ongoing effort to manage.

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Extended Results

The main aim of this research was to understand what changes when individuals are faced with the challenges that face them after surgery and how individuals cope emotionally. The three superordinate themes highlighted in the previous journal article link directly to this aim. However, three further superordinate themes emerged in the analysis process, which, although not directly linked to the research aims, still warrant presentation and discussion. The full six superordinate and subordinate themes are illustrated in Figure 3 however, only the three additional themes that have not been discussed in the journal article will be presented in this chapter.

Theme 4: Being Judged Negatively

A superordinate theme across participants was concern about being perceived negatively by others, either due to their excess weight or because they have received BS through public funds.

How could you get to that size?

Participants discussed perceptions of being judged negatively when in public due to their excess weight. This perceived judgement by others was connected to a sense of shame. This sense of being negatively appraised by others is illustrated in the following quote from participant 2, who responded by avoiding social contact.

“I used to hardly go out, I hated going out, very paranoid about how I was, I always thought people were saying how could she let herself get to that size”

(Participant 2)

Concerns about being judged negatively varied from many descriptions of members of the public openly making comments and staring, to participants having a sense that people were viewing them unfavourably. Participant 7 described situations where she was treated cruelly by strangers but also of her own fear of being judged when eating in public.

“I go out for a meal or even to a cafe or whatever, I wouldn't... I would avoid eating food that they could assume is the cause of my problems. So even if I wanted a big plate of fish and chips, I wouldn't have it because then you'd come in and think ‘ohh god no wonder she's fat she's sitting eating that’.”

(Participant 7)

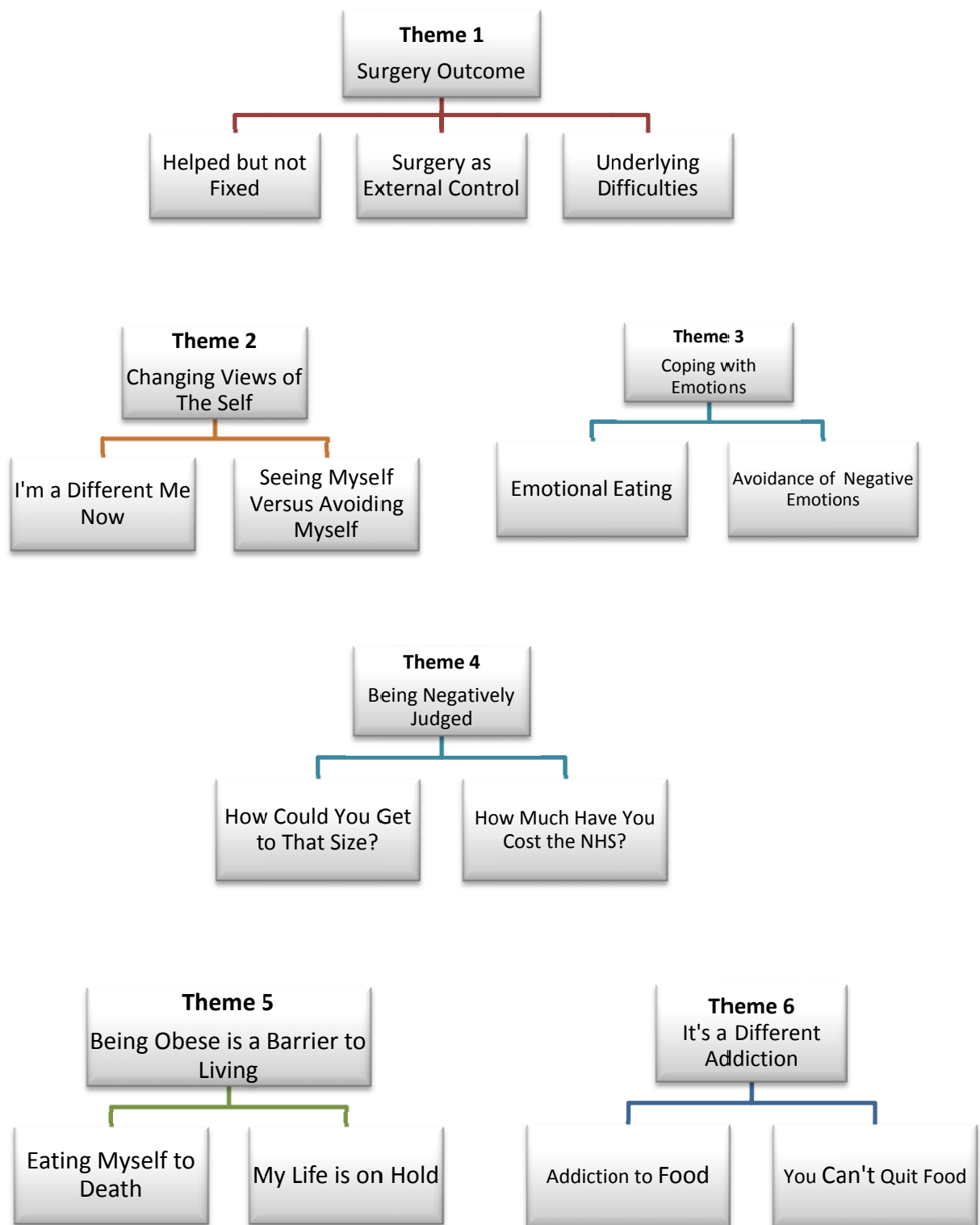


Figure 3: Diagram of Superordinate and Subordinate Themes

This same concern for being judged negatively when eating was described by many participants and highlights the pain of having a problem that is visible to others. Participants' sense of feeling exposed was evident within this theme and was linked to avoidant behaviours such as not eating in public and not being seen in public.

“sitting in a cafe and no matter what you were eating, you could be eating a salad but you're feeling guilty because you're so fat and you're like, oh my god everybody's watching me eating this”

(Participant 5)

The participants who shared experiences of others making public comments about their weight, also described their own reaction to this. Some described their behaviour as 'giving back as good as you get' or to laugh off the hurtful comments. Despite the in situ reactions however, the pain of hearing such comments was clear. In the following quote from participant 2, she responds to a hurtful situation in an assertive way, which had a negative impact on how she felt about herself.

“sometimes you know, ehm, I caught people staring you know or you know, people speaking about you. You know. Stupid things like when I used to work at [place of work] christmas night out, a guy asked me up to dance out of a bet. You know. Stupid things. Immature things like that and that really hurts you know whereas, you know, I bounced back, I just went and threw his drink. He came and apologised with a drink and I just threw it over him. You know and I just walked away and told him he was an immature little prick. You know and you know but that doesn't make you feel good at all. You know. I mean I'm the kind of person who takes people for who they are regardless of what size they are and what they look like, how they are and to be judged on that is very hard.”

(Participant 2)

Participant 1, however, discusses that her response was to withdraw socially and behave in a way that she viewed to be contrary to her outgoing personality.

“people just for no rhyme or reason, I wasn't being nasty to them or anything like that, just come out and say things like that and that's the trouble with society. With a result of that, even though I was an outgoing person, that's why I would tend to draw back and maybe not be as outgoing as what I, as what my nature is because stupid people like that would make comments.”

(Participant 1)

Participants' accounts of being judged negatively were all referred to as past experiences and it seemed from their descriptions that these were experiences that were no longer occurring since BS. What seemed to continue, however, was the pain caused by such experiences.

Judged for the Cost to the NHS

A universal theme across all participants was of being judged negatively by society and the media because of the cost of BS to the NHS.

"I still think that people really don't understand. Although obesity has now become the in word, I mean I seen somebody on one of the news programs one night and they were basically saying, why should the NHS spend all this money on bariatric surgery when all they've got to do is cut back on their eating and increase their exercise? So the ignorance is still there."

(Participant 7)

All participants defended their surgery with research outcomes, highlighting the long term cost savings following surgery, with a prevailing focus on the financial cost of BS. For example, in the following quote from participant 8, she explains that she feels she has earned her surgery because her existence has benefited society. This type of justification was apparent in the majority of interviews.

"I have taken up a huge amount of money for this operation. But I think the input I've had in society for the past 20 years and for the next 20 years is...I've earned that. I think it's more beneficial for me to be around than not be around."

(Participant 8)

Despite the earlier theme of participants being aware of the risk of their untimely death if they did not receive treatment, their focus was predominantly one of financial saving and not of life saving. This highlights how the participants feel they are viewed by society; that their lives are only worth saving if it is of financial benefit to do so.

“I believe I was at the point, when I went to the clinic and 25 stone that I was going to have a heart attack quite soon and that would've cost the NHS more than it costs now”

(Participant 5)

“before I had this operation I had type 2 diabetes, that's gone. So I don't use up the tablets any more. I don't use up the eye screens and the blood tests so all that money is saved is all part of getting that operation. Then you have to think of all the mobility problems, I don't have any of that but if it had carried on, how long would it have been before I had the. The cost of the operation really, for me personally, I look at it and think, whey, I deserve that because you know, you pay your taxes all these years”

(Participant 3)

The recurrent theme of the ‘cost to the NHS’ highlights patients awareness that this elective procedure is often reported in a negative way in the media. Participants therefore felt the need to justify their treatment through explaining how it has saved the NHS money in the long run or, in a more defensive way, by explaining that they have paid tax and are therefore also eligible to receive health care.

Theme 5: Being Obese is a Barrier to Living

Each participant spent time exploring various factors that related to their own experiences of living with excess weight. This was not an area that was asked about directly and reflected both current and past experiences. Participants highlighted the difficulties living with excess weight in relation to their reduction in quality of life and increased risk of death. In the following quote, participant 9 highlights this theme; her quality of life was being impacted due to her weight and alludes to her belief that she would have soon died had she not received BS.

“my quality of life was rubbish and I don't actually know how much longer I would have had if it hadn't been for that team because then, things were getting pretty bad. It was one thing after another that was going wrong with me, you know, it was constant you know, and em, I don't know where it would have ended up, I dread to think.”

(Participant 9)

Two subordinate themes emerged within this category; Life on Hold and Eating Myself to Death.

Life on Hold

A sense of feeling like being obese was in some way a barrier to living life was discussed by all participants.

“My life was on hold. My life was on hold until I lost the weight”

(Participant 9)

Whether it be limiting with respects to physical health, mental health or mobility, there was a sense that life was being limited by being overweight.

“I wasn't able to work. I wasn't able to walk. I wasn't able to do anything. I had a converted house, it was converted for disability because the majority of time I spent either on elbow crutches or in a wheelchair, ehm, I had severe pain hips, knees and ankles. I would sit with my feet up at night, with ice packs on them because they were so sore, ehm, I was on a mixture of all sorts of medication, which I think in all it was 21 tablets a day I was taking. Yeah, it was huge. Uhm. I got to the stage now where I couldn't even walk to the bus stop outside my house never mind anything else”

(Participant 4)

For participant 4 in particular, the symptoms of her excess weight such as pain and immobility caused such a degree of disability that ‘normal’ life was impossible, which was also succinctly described by participant 3.

“I need this to go away and let me get on as a normal functioning human being.”

(Participant 3)

There was a strong sense of participants believing that their weight was limiting their immediate participation in life; everyday aspects of life that would be possible if they lost weight. However, their ability to lose any weight was impeded by their excess weight, which for many felt like they were stuck in a negative cycle. This sense of excess weight trapping participants in a negative cycle, which impacted their overall involvement in life, is highlighted in the following quote from participant 1;

“I was getting to the stage where ehm maybe not... I was never depressed... I mean I was depressed but I wasn't suicidal but I was at the stage where, you're going round in a vicious circle. I was eating sitting staring at the television. Ehm. Didn't want to go out with my friends or anything like that. Staying in at the new year when I was asked out because I was, I didn't feel like going out because I felt like a big beached whale. I didn't think I looked nice in anything I wore. So I was, I was just going

round in circles. [section omitted for brevity] So I was just in a vicious circle. I mean, I was depressed about my weight.

(Participant 1)

In the following quote from participant 2, she highlights the impact her excess weight had on her self esteem and confidence, which led to her losing motivation to socialise and therefore further negatively impacted her life.

“when the weight started going on and I started you know, it just, especially since a lot of my mates were so thin and you know it, I was the fat one of the group you know and just end up getting ehm quite, you end up losing your self confidence. You know, you see them getting asked up to dance, you see them getting on and you it's like here am, you end up like, what's the point in going out?”

(Participant 2)

This description of reduced quality of life, confidence and activity is in contrast to the description of changes following BS, which were typically positive. Overarching this is a sense that excess weight is a barrier to living a full and healthy life.

Eating Myself to Death

Participants expressed a frank awareness that they could die as a result of their excess weight. This was more than a reduction in quality of life, instead this reflected that, if nothing changed, life itself would end. For participant 8 there was also a clear belief that having BS would stop her from dying.

“To me it was like, it sounds dramatic and cheesy but literally, he [surgeon] was saving my life, I was literally eating myself to death”

(Participant 8)

For many, this reflected a realisation, occurring before surgery and which led them to having surgery. Therefore, for many the thought of death was a motivating factor to have BS, which had a sense of desperation and having no other choice.

“I made a conscious decision that I have to lose weight or I'm going to die. I'd reached, my actual weight was 29 stone 10 and I thought, if I don't do something now, I never will.”

(Participant 4)

Throughout this theme, participants also referred to their own responsibility in their excess weight. There was awareness that their own action of eating had led them to this point. In the following quote, participant 2 acknowledges that it was her own eating behaviour that was ultimately going to end her life.

“I know what I've done is for my own health, that's the way I look at it. I've done it because of my own health because I was eating myself to death...ehm and if I kept going on the way I was going I would've killed myself.”

(Participant 2)

Participants expressed a sense of fear and sadness in relation to this theme; as though they had reached the “end of the rope”, that there had to be an intervention or their life would end. As is expressed by participant 8 in the following quote;

“I thought it's either that (have surgery) or I'll be dead by the time I'm 45.”

(Participant 8)

Theme 5: It's a Different Addiction

Participants universally raised the issue of addiction during the interviews, which again was a term or concept that had not been raised in any way by the interviewer. Participants spoke of the theme of addiction in two distinct ways; to compare their own struggles with food with that of an alcohol/drug addict and to comment on the help they received in comparison with a drug/alcohol addict.

Addicted to food

Participants likened the way they used food to how an addict uses drugs. For participant 8, this was a way to explain the function of her eating behaviour; that she would gain an immediate benefit from eating, which would then be followed by a low.

“I can only equate it to something like [drug] addictions, and I'm not saying that this addiction is the same but there is a similarity to it... this wanting to shut the world out, but I'd sit and eat rubbish and the sugar burst would give me a buzz, then I'd get depressed and go to bed, wake up tomorrow and think- god I've probably put on another 2 pounds”

(Participant 8)

Participant 8's account was also similar to the cycle of self harm behaviour, the way in which an immediate sense of relief from a coping strategy overtakes the longer term, negative consequences.

For participant 9, however, their comparison to an addiction was more literal; for her, she felt like she had an addiction to food that was the same as that of alcohol or drugs. She also talked of the sense of panic if she were unable to access food, akin to how someone addicted to drugs may feel.

"it was like a drug with me. It was... I mean people will go to alcohol or drugs or whatever, to me it was food it was a real addiction. I mean I used to panic if I didn't have certain foods in the house especially over the weekend when I know I wouldn't go out of the house. So I would panic if these certain things weren't in place"
(Participant 9)

For participant 3, the theme of addiction was related to finding the cause of her eating difficulties and how this would relate to appropriate treatment.

"If I knew which issue caused my start, on the road to this, then that's the issue I would want to try and solve, to deal with. You know like, there's other ways to solve a problem rather than doing... you know? Right, okay someone's been raped, so they start taking heroin but we know the way to treat them is to sit down and counsel them and go through it and find other avenues for them to release, rather than go and take the heroin. It's the same thing but just with food."
(Participant 3)

The theme of addiction emphasises the uncontrollable aspect of participants' need or drive to eat in a certain way; that there is something compelling them towards doing so. Akin to addictions, their behaviour is also harmful to them but they feel that they cannot stop, or at least, they cannot do so easily. This also introduces the concept of participants gaining something from their use of food; that there is something reinforcing and functional to the behaviour, the same way a drug addict may obtain a high and escape from emotional or physical pain through taking a drug.

Some frustration or anger was detected in participants' perception of more help being available for drug addicts compared to obese people. Participants also made

reference to people with weight problems being treated less favourably than drug addicts and drug addicts receive more care and empathy from society and media.

“Like if you smoke you can get help, you can get patches. If you’re a drug addict you get, whatever stuff that you get, ehm, when you are obese you don’t get anything...I mean people they get, if you get drugs, you get put into hospital to detox and then things like that, I mean what do you do when you’re obese? They don’t give you anything.”

(Participant 1)

This highlights the issue of participants’ view that their difficulties are not fully understood, there is a lack of empathy and the treatment they receive is insufficient.

“And there’s more empathy and understanding for alcoholics or drug addicts. Although most people don’t particularly like drug addicts but they can see why they’re on drugs, maybe they’ve had a bad upbringing. So there’s more empathy and understanding for those kinds of addictions than there is for eating.”

(Participant 7)

You Can’t Quit Food

Whilst speaking of their difficulties with food as an addiction, participants also spoke of the difficulty overcoming their addiction to a substance that cannot be stopped completely.

“if you think about an alcoholic or a drug addict, if you were saying to them every day, have one measure of whiskey every day or one needle full of whatever every day, they couldn’t do it. Well that’s like me. I’m being told- have tomatoes and lettuce every day. If cabbage and lettuce tasted like dairy milk and galaxy, I’d be alright... You have to eat. It’s the one thing you can’t live without is food. You can live without whiskey and heroin and smoking”

(Participant 7)

Participants explain that because food is necessary for life, they cannot ‘quit’ as one would when attempting to overcome another addiction, which makes recovery from their addiction more difficult.

“because it’s food we think oh it’s not as bad and then we think but we need it on a daily basis, it’s not like I can stop eating”

(Participant 3)

“a lot of people say, I'm a reformed smoker, you don't need to smoke so what do you do when you not allowed food and that is quite hard. I did go through the stage of, ok, I've never smoked, never been able to smoke but yes I know what an addiction is and yes when people get to the stage where they're 'just one fag' [Identifier] we all get there but at the same time...when it's food it's basic because you're like I need food to live”

(Participant 4)

Most participants compared their eating difficulties to other forms of addiction, which led to a comparison of treatment for obesity to treatment for addiction and the resounding conclusion that since food is necessary for living, an addiction to food is extremely difficult to overcome.

Participant Accordance

In general, the six superordinate themes that emerged were evident in the data from all 10 participants. There were, however, some variations that warrant discussion. It is recognised that Participants 1, 2, 3, 4, 7, 8 and 9 are represented in the results more than participants 5, 6 and 10, with significantly fewer quotes from participant 5 and participant 10 (2 included quotes from each). The author spent time considering the possible reasons for this. One clear pattern is that the participants with more representation in the results, provided longer interviews, with fewer prompts from the author and therefore appeared to be particularly expressive. Participants 1 and 6 were less expressive in their interviews but still provided data that corresponded to the included themes. However, interviews with participants 5 and 10 appear to be of a different quality, in that these participants were less expressive about the psychological aspects of their experiences and much of their data focused on physical changes and the practical aspects of surgery. Interviews with participant 5 and 10 included significantly more prompts and follow up questions from the author.

One difference between participants 5 and 10 and the remaining participants is their outcome from surgery; both were visibly slim and described feeling that they were at their weight loss goal. The remaining participants, however, reported that they hoped to continue to lose more weight and were therefore continuing with the weight loss process. This may therefore reflect differences in adjustment. It is possible that participants 5 and 10 had very positive experiences of BS and the adjustment process and therefore have less on which to comment. Interestingly however, both

participants had difficulty articulating what had changed following BS, which could be due to various factors such as a level of avoidance but without further data, this is merely speculation.

Extended Discussion

This section intends to offer discussion of the extended results that were not included in the journal article, with a discussion of the overall results.

Obesity and Addiction

A key superordinate theme that emerged was that of eating difficulties being similar to a drug or alcohol addiction. This could be understood as a literal comparison or as an analogy.

Obesity IS LIKE an Addiction

Participants' discussion of addictions may have been analogical, referring to the similarities between substance use and obesity. There are strong overlaps between obesity and drug addiction, in that individuals are compulsively driven towards ingesting a substance that will ultimately cause physical harm. This analogical conception could relate to participants' described inability to control their drive to eat, which they view as similar to a substance user's inability to control their craving for drugs. Participants described a sense of feeling understood by this comparison and appeared to want others in society to make this comparison, with the belief that, if society could feel empathy for a substance user, then they too would feel empathy for someone who is obese.

Although it is positive that participants appeared to gain a sense of feeling understood by this comparison, this could also be viewed as creating a somewhat powerless stance against a drive to over eat. The concept of addiction could also be viewed as being at odds with the perspective that participants can control their eating behaviour and therefore weight, which maintains a stance that lacks self efficacy. It is possible that this belief may prohibit participants from taking control of their eating behaviour and lead them to underestimate their level of control.

What is clear from participants' accounts of what changes following BS is that many behavioural and cognitive changes are made by participants themselves. For example, participants described making and eating smaller meals, being mindful when eating and increasing activity levels. Such changes are not the direct result of surgery but instead require some level of deliberate change. This may indicate that participants are unaware of the extent to which their outcome from surgery has been the result of their own actions. In addition, when treatment models for addictions were considered by participants, this appeared to cause a sense of hopelessness. As many of the participants pointed out, it is not possible to abstain from eating, as would typically be the goal when overcoming a drug addiction. This analogy appears to therefore fail when making comparisons to treatment models and in promoting an accurate sense of self efficacy.

Obesity IS an Addiction

An alternative view is that participants were referring to addiction because they experience a genuine physical addiction to food or certain types of food. Some participants did emphasise that they felt they did have an addiction, which did not appear to be analogical.

The term 'addiction' typically refers to behaviours associated with the use of substances such as alcohol and illicit substances. However, when the definition of addiction is considered; "A syndrome at the centre of which is impaired control and over reward seeking behaviour" [23], p10. The focus is on the behaviour relating to the addiction, rather than the substance itself. This addictive behaviour is impulsive, driven, out of control and focused on obtaining something that is, to some degree, rewarding but ultimately harmful [23]. It seems clear that participants' relationship with food, as described in this study, could be understood as an addiction.

Interestingly, there is a body of neurological evidence to support this view. There are some strong similarities in the neural connections for both obesity and drug addictions. Neurological evidence has demonstrated that the same neural circuits are involved in both drug/alcohol addictions and obesity [24]. This finding suggests that the over consumption of food alters the balance between neurological circuits involved in reinforced conditioning and control, which is the same processes

involved in drug addiction [25]. Therefore, the neurological changes that occur in obesity create a situation where food is more desirable and there is less ability to control eating behaviour [25]. Research also suggests that this neurological circuit with food is more complex than that for drugs and alcohol, as there is an enhanced activation of the motivation circuit, which leads to compulsive behaviour, which is different to that found with drug addictions [24]. Such neurological evidence supports the participants' view; that they have an addiction, food is extremely desirable and that it is difficult to inhibit eating behaviour. 'A Different Addiction' is perhaps a highly accurate way to describe their situation.

There appears to be several important factors relating to the issue of addiction that need considering. Participants view people with drug addictions as receiving a greater level of treatment and understanding, which suggests that something is missing in the obesity treatment as received by the participants of this study. It is possible the treatment experience of participants in the current study is different to other people undergoing BS. As previously mentioned, the service accessed for this study had no psychological service input until recently and therefore this could reflect the 'something missing' from their treatment. However, those with addictions to substances such as drugs and alcohol can receive multidisciplinary input from specialist services but for those with difficulties moderating their eating behaviours, there are far fewer treatment options. An interesting development for future research would be to examine the addiction element of obesity and BS from a psychological perspective, to perhaps develop a treatment model that includes this aspect of people's difficulties.

What was particularly interesting about the development of this pervasive theme was that it was not raised by the author and was not a concept that the author had considered. From the available published qualitative research in the area, a theme of addiction does not appear to have emerged, however, some similar issues are apparent. For example, Ivezaj, et al., [26] interviewed individuals with substance abuse difficulties who had previously received BS. The results of this paper indicate participants substituted one addiction for another and therefore the concept of being addicted to eating is implied. Similarly, LePage, [27] describe the theme of 'Filling

the Void', which covers the function of participants eating behaviour and the quest post surgery to replace this behaviour. This included the development of other 'obsessions' such as tattoos and shopping and of substance abuse problems. Therefore, the theme of viewing eating problems as an addiction is present in previous research, albeit at a less explicit level than in the current paper.

Since addiction has not been an emergent theme in other similar studies, it seems pertinent to consider the possible reasons for this issue being raised so unanimously amongst the participants of this study. It is feasible that the high occurrence of this comparison is due to participants having heard this elsewhere. For example, clinicians working with participants may have used 'addictions' as a comparison, to demonstrate empathy for the difficulties faced when changing eating behaviours. As previously noted, however, it seems that this comparison is linked to and possibly reinforces, reduced self efficacy. Since increased self efficacy is linked to positive outcome following BS, it may therefore be advisable to reconsider using such analogies clinically.

Experiences of Obesity and Bariatric Surgery

It seemed important for participants to express their experience of living with excess weight. This was not something that was asked either directly or indirectly by the author but all participants spoke, at least to some degree, of the physical, emotional and social difficulties that they experience, or continue to experience, through being obese or overweight. Participants appeared to want the author understand how difficult it was to be obese. Themes relating to impending death, having reduced quality of life, being controlled by an addiction, having limited coping resources and being judged by society were encompassed by participants, keen to share their negative experiences of being obese.

There could be various factors underlying this desire to describe the negative aspects of being obese, which may be linked to participants' perception that they are judged negatively by society not only for being obese but also for seeking a surgical solution from the NHS. Previous research has highlighted the stigma associated with being obese and the impact this has on those who are obese [28, 29]. There does not appear

to be similar research examining the issue of stigma of receiving BS from the NHS. This may be an area worth pursuing for future research. It appeared to be a strong theme for the participants and when the media's portrayal of BS is examined, there is evidence of stigma associated to having BS provided by the NHS. For example:

“Family of four lose 44-stone after taxpayers pay for ALL of them to have gastric bypass surgery” [28]

“Pork-Lift Truck. Ambulance takes the world’s fattest man to hospital yesterday for his belly-busting op — which will cost taxpayers £20,000.” [29]

Clearly, these are extreme examples of the tabloid media's portrayal of BS but they highlight the perception of BS that was described by participants. Participants provided examples of television programs, and newspaper and magazine articles depicting a similar portrayal of BS. Due to high levels of perceived stigmatisation, participants feel that they are not understood and their descriptions of how difficult life is/was may be to evoke empathy and understanding.

It is possible that this need for understanding and empathy reflects a more fundamental unresolved need to be understood. This could be connected to the previously mentioned subordinate theme; Underlying Difficulties. Several participants disclosed difficult experiences in their past that related to emotional neglect and thus of not being understood and empathised with. It is possible that participants are attempting to meet this emotional need by having their obesity related difficulties understood. Research examining links between emotional neglect and obesity or BS outcome is scarce but there is some evidence that experiences of childhood neglect and abuse is linked to obesity in adulthood [30]. Considering over half of the participants also discussed a desire for a psychological therapeutic approach, may add further weight to this suggestion.

It is also possible that, in feeling stigmatised and judged for being obese and for having surgery through the NHS, participants felt the need to defend their position. The ‘defended subject’ is an issue that has been addressed by other qualitative researchers, who suggest that individuals may spontaneously provide information to protect a vulnerable part of themselves [31]. Such defence may be apparent in the

descriptions of how difficult life is when obese and the likelihood of their death if no intervention occurred. Participants may have felt that during the interview process the 'obese' and 'help seeking' part of themselves was being attacked and therefore defended by providing examples of how difficult it is to be obese and how surgery actually saved the NHS money.

In addition to participants possibly being defensive, within the subordinate theme, Judged for the Cost to the NHS, participants expressed a strong sense of gratitude for BS. For example, throughout the interviews, participants were exceptionally positive about the level of care received from the Weight Management Service. Although this is likely the case, it seemed that participants were emphasising how grateful they were to receive treatment and expressed a desire for the surgery to be a success based on factors such as how lucky they were to have surgery. This could be an issue for health care providers to consider when working with those who have received BS or who are being assessed for such treatment, as it may influence how individuals respond to offers of treatment. This may create an unhelpful dynamic between the patient and weight management team that could possibly impact treatment. In addition, it is possible that this feeling of gratitude may have led participants to emphasise the positive aspects of BS and omit any negative perceptions of their treatment during interviews.

Emotion Regulation

In addition to what has been previously discussed about emotion regulation in the journal article, the possible link between emotion regulation, EE and obesity may benefit from further investigation. It seems that employing a developmental psychological approach to this area may be worthwhile. For example, the theory of attachment [32] is of particular importance to the development of emotion regulation and therefore EE but few studies have been conducted to examine the possible role of attachment in obesity. There are however, some studies, with varying results, to suggest there may be an association between insecure attachment style and adult obesity [33] which is further supported by the previously motioned link between obesity and incidence of childhood trauma [34]. Furthermore, there is also a body of research linking other types of eating disorders, such as anorexia nervosa with

insecure attachment styles [35] with attachment being viewed as playing a vital role in the development, maintenance and successful treatment of anorexia nervosa [33]. Attachment style has also been linked to the development of childhood obesity and body image concerns [36, 37]. Evidence for biopsychological models of attachment has supported the view that there is a link between early childhood attachment and emotion regulation [36]. This model posits that attachment is the process by which emotional states can be regulated and managed [37]. It may therefore be of interest if future research explored the link between emotion regulation, attachment and obesity, taking Schore's [37] biopsychological model and Volkow's [25] reward and control neurocircuitry model of addiction into account.

This could also be a potential area for psychological treatment for those who are identified to have emotion regulation/attachment difficulties prior to or following BS. One treatment modality that appears to link well with the areas discussed would be Dialectical Behavioural Therapy (DBT), which has been shown to have positive outcomes for emotional eating [38, 39] and binge eating disorder [40].

Overall Conclusions

This study sought the experiences of 10 women who had recently undergone BS. The resulting data was rich and provided a valuable insight into various aspects of BS. It is clear from participants' accounts that there are many significant positive changes following BS; a significant amount of weight is lost, eating behaviours change and perceptions of food alter. However, as participants tended to attribute BS for such changes, there appears to be an under recognition of their own role in the changes. Participants' descriptions of obesity being the result of an addiction and emphasis on the difficulties associated with losing weight may also highlight the issue of reduced self efficacy. This research also highlighted that for many, having BS does not cure all difficulties associated with eating. All participants described a history of EE and although some had reduced this behaviour significantly, for many EE continued to be a difficulty. It is possible there are underlying difficulties associated with obesity, such as neurocircuitry pathways increasing desire for food and reducing control over eating and attachment difficulties reducing emotion regulation capacity. Further research is required to understand such possible explanations and develop

appropriate interventions. What seems clear from the current research is that although BS provides many positive changes, the battle against obesity continues for most and services are currently limited in their resources to intervene; both pre and post surgery.

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Appendices

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Appendix 1

Systematic Review Quality Assessment Tool

Quality Assessment Tool

Review aim: To evaluate the evidence of how emotional eating relates to weight loss following bariatric surgery

Paper:

Item	Descriptor	Defined	Score/rating
Sampling and recruitment			
1	Post surgery weight measurement recorded following sufficient time since surgery	Weight recorded more than 18 months post surgery	Well Covered = 2
		Weight recorded 9 months to 18 months post surgery	Adequately Addressed = 1
		Weight is recorded 8 months or less post surgery	Poorly Addressed = 0
2	Type of bariatric surgery	Either same type of surgery across all participants or the type of surgery across participants is clearly described and comparisons are made between different types of surgery.	Well Covered = 2
		Type of surgery described, no comparisons are made directly but differences between groups can be ascertained from results	Adequately Addressed = 1
		No description of types of surgery and no comparisons can be made	Poorly Addressed = 0
3	Sample size is sufficient	Sample size is 50+	Well Covered = 2
		Sample size is 25+	Adequately Addressed = 1

		Sample size is <25	Poorly Addressed = 0
Assessment of outcomes			
4	Standardised measures of emotional eating applied and validated	Recognised standardised measures are used (e.g. Emotional Eating Scale, or Dutch Eating Behaviour Questionnaire)	Well Covered = 2
		No standardised measures used but clinical interview used instead	Adequately Addressed = 1
		Measures used are not standardised and no clinical interviews used	Poorly Addressed = 0
5	Weight measurement	% weight loss (or %total weight loss) used as weight change outcome measure	Well Covered = 2
		Other standardised approaches such as % excess weight loss and % reduction in BMI are used.	Adequately Addressed = 1
		Other approaches of weight change outcome are employed- such as absolute weight loss. Or measures used are not clearly describes and difficult to determine.	Poorly Addressed = 0
6	EE compared to BS outcome	EE measurement is compared to weight loss using appropriate statistical approach (e.g. correlation)	Well Covered = 2

		EE measurement is not compared to weight loss outcome but the data is available to make appropriate comparison	Adequately Addressed = 1
		Comparisons made are inadequate and interpretation is not possible.	Poorly Addressed = 0

Appendix 2

Participant Debrief Sheet



Participant Debrief Information Sheet

Title of Project: **Weight loss surgery: Patient's experience of life post surgery**

Name of Lead Researcher: Ms Kari Henderson, Trainee Clinical Psychologist

Dear Participant,

I would like to thank you for agreeing to participate in this research. Your help and contribution is very much appreciated.

If you would like to learn more about this study, please do not hesitate to contact me by email, at kari.henderson@nhs.net or phone at 01382 306150. Alternatively, you can contact my supervisor Dr Zoe Chouliara, Clinical Health Psychologist at zoe.chouliara@nhs.net or by phone at 01382 740 406.

This study is not intended to upset you in any way. However, the interview may have raised some issues or concerns. If you feel you need information, advice or support about some of the issues raised in this study and/or your interview, you should contact Dr Zoe Chouliara, who works within the clinical health psychology service.

For more information about health and eating difficulties, the following websites maybe useful:

- www.nhs.uk/LiveWell/Loseweight An NHS site with a wealth of information on all aspects of weight management
- www.healthscotland.com Information and links to information on various health topics
- www.nationalobesityforum.org.uk/ – Organisation raising awareness of the impact of obesity. 'Lifestyle' area contains information on all aspects of weight management

I would like to thank you for your time and consideration.

Yours sincerely

Kari Henderson
Trainee Clinical Psychologist
Patient Debrief Sheet Version 1
Date: 25.08.11

Appendix 3

NHS Ethical Approval and R&D Management Approval

East of Scotland Research Ethics Service (EoSRES) REC 1
(formerly Tayside Committee on Medical Research Ethics A/B)
Tayside Medical Sciences Centre (TASC)
Residency Block C, Level 3
Ninewells Hospital & Medical School
George Pirie Way
Dundee DD19SY

Miss Kari Henderson
Trainee Clinical Psychologist
NHS Tayside
Dundee Adult Psychological Therapies Service
7 Dudhope Terrace
Dundee
DD3 6HG

Date: 18 January 2012
Your Ref:
Our Ref: LR/11/ES/0039
Enquiries to: Mrs Lorraine Reilly
Extension: Ninewells extension: 40099
Direct Line: 01382 740099
Email: lorraine.reilly@nhs.net

Dear Miss Henderson

Full title of study: Weight loss surgery for adult obesity: The patient's experience of change post surgery.
REC reference number: 11/ES/0039

Thank you for your letter of 10 January 2012, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.



Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Evidence of insurance or indemnity	UoE	07 September 2011
Interview Schedules/Topic Guides	1	17 October 2011
Investigator CV		10 October 2011
Other: Weekly evaluation form		
Other: Supervisor CV - Paul Graham Morris		
Other: Weight Loss Surgery: Patient Experience of Life Post Surgery volunteer Sheet	1	17 October 2011
Other: Participant Debrief Information Sheet	1	25 August 2011
Other: Letter of Invitation	2	11 January 2012
Other: Supervisor CV - Dr Chouliara		16 December 2011
Participant Consent Form	2	11 January 2012
Participant Information Sheet	2	11 January 2012
Protocol	1	06 October 2011
REC application	73364/258966/1/485	
Response to Request for Further Information		10 January 2012

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators



- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback


You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

11/ES/0039:

Please quote this number on all correspondence

Yours sincerely


 **Dr Carol Macmillan**
Chair

Email: lorraine.reilly@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Marise Bucukoglu, University of Edinburgh
 NHS Tayside R&D office



26 January 2012

Miss Kari Henderson
Trainee Clinical Psychologist, NHS Tayside
Dundee Adult Psychological Therapies Service
7 Dudhope Terrace
DUNDEE DD3 6HG

Dear Miss Henderson

R & D MANAGEMENT APPROVAL - TAYSIDE

Tayside R&D Project ID: 2011PZ08

Title: Weight loss surgery for adult obesity: The patient's experience of change post surgery.

REC Ref: 11/ES/0039 Main REC Approval Date: 18JAN2012

Sponsor: University of Edinburgh

NHS Support Costs: No

Many thanks for your application to carry out the above project here in NHS Tayside. I am pleased to confirm that the project documentation (as outlined below) has been reviewed, registered and Management Approval has been granted for the study to proceed locally in Tayside.

Approval is granted on the following conditions:-

- ALL Research must be carried out in compliance with the Research Governance Framework for Health & Community Care, Health & Safety Regulations, data protection principles, statutory legislation and in accordance with Good Clinical Practice (GCP).
- All amendments to be notified to TASC R & D Office.
- All local researchers must hold either a Substantive Contract, Honorary Research Contract, Honorary Clinical Contract or Letter of Access with NHS Tayside where required (http://www.nihr.ac.uk/systems/Pages/systems_research_passports.aspx).
- TASC R & D Office to be informed of change in Principal Investigator, Chief Investigator or any additional research personnel locally.
- Notification to TASC R & D Office of any change in funding.
- As custodian of the information collated during this research project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT Security Policies, until destruction of this data.
- Recruitment numbers on a quarterly basis to be reported to TASC R & D Office.
- Annual reports are required to be submitted to TASC R & D Office with the first report due 12 months from date of issue of this management approval letter and at yearly intervals until completion of the study.

- Notification of early termination within 15 days or End of Trial within 90 days followed by End of Trial Report within 1 year to TASC R & D Office.
- You may be required to assist with and provide information in regard to audit and monitoring of study.

Please note you are required to adhere to the conditions, if not, NHS management approval may be withdrawn for the study.

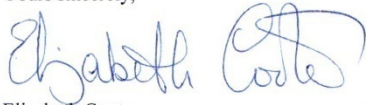
Approved Documents

Document	Version	Date
Protocol	V1	6OCT11
Participant Information Sheet	V2	11JAN12
Participant Consent Form	V2	11JAN12
Participant De-brief information sheet	V1	25AUG11
Volunteer sheet	V1	17OCT11
Letter of invitation to participant	V2	11JAN12
Weekly Evaluation Form	No version	undated
Interview Questions	V1	17OCT11
REC Provisional favourable opinion with conditions		28NOV11
REC favourable opinion conditions met		18JAN12

May I take this opportunity to wish you every success with your project.

Please do not hesitate to contact TASC R & D Office should you require further assistance.

Yours sincerely,



Elizabeth Coote
R&D Manager

TAside medical Science Centre (TASC)
Ninewells Hospital & Medical School
TASC Research & Development Office
Residency Block, Level 3
George Pirie Way
Dundee DD1 9SY
Email: liz.coote@nhs.net
Tel: 01382 496536 Fax: 013812 496207

c.c.

Paul Morris
Marise Bucukoglu

Appendix 4

Participant Invite Letter

Weight Management Service
Dietetics Department
Level 5
South Block
Ninewells
DD1 9SY

Telephone No: (01382) 740366
www.nhstayside.scot.nhs.uk



Date Typed:
Date Submitted:

Enquiries to	Weight Management Service
Extension	-
Direct Line	01382 740366
Email	-

Dear

I am contacting you with regards to a research project that is being carried out through the weight management service. Everyone who has received weight loss surgery through this service is being invited to take part in this research project. The aim of this project is to better understand the experiences of people who have had weight loss surgery.

The person carrying out this project (Kari Henderson, Trainee Clinical Psychologist) would like to meet with people who have had weight loss surgery and talk to them about their experiences. I have enclosed an information sheet that will give you more information about the research project and what it involves. This project is being undertaken as part of an educational qualification.

If you would like to take part in the project, please complete the 'volunteer sheet' and send to the researcher, using the freepost envelope provided.

Participation in this project is voluntary and should you chose not to participate, your decision will not interfere in any way with your treatment or care.

Yours sincerely

Declan Fields
Specialist Dietician

Letter of Invitation Version 2
11/01/12



Working with you for better health and better care
Headquarters: Ninewells Hospital & Medical School,
Dundee, DD1 9SY
Chairman, Mr Sandy Watson OBE DL
Chief Executive, Mr Gerry Marr

Appendix 5

Participant Information Sheet



Patient Information Sheet

Weight loss surgery: Patient's experience of life post surgery

You are being invited to take part in a research study that is being conducted in part fulfilment of Doctorate in Clinical Psychology degree at the University of Edinburgh. If you would like to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Please contact the lead researcher (Kari Henderson, Trainee Clinical Psychologist), if there is anything that is not clear or if you would like more information. Please take time to decide whether you wish to take part.

What is the purpose of the study?

The aim of the study to help us understand the experiences of people who have had weight loss surgery treatment. People are increasingly being offered surgery as a treatment option for obesity. It seems that their personal experiences of this type of treatment have often not been evaluated. In this study I would like to ask about your experiences of what life has been like for you following surgery.

Why have I been chosen?

Because you have been identified as having had weight loss surgery at least 8 months ago and you are over the age of 18 years.

Do I have to take part?

No. Your participation in the study will be voluntary and your responses will remain anonymous. If you do decide to take part you will be given this information sheet to read carefully and then asked to sign a consent form. If you decide to take part **you are still free to withdraw at any time and without giving a reason**. If you withdraw, all personal information will be destroyed, however, some of the anonymous information that you provide may still be included in the study. A decision to withdraw at any time will not interfere in any way with your treatment or care.

If I volunteer will I definitely be involved in the study?

Not necessarily. In the unlikely event that more people volunteer to participate than are needed for the project, then it is possible some volunteers will not be asked to participate. Participants will be selected on a 'first come, first served' basis.

Some individuals may not be invited to participate if it is deemed by the researcher or the Weight Management Service that participation may be detrimental to their wellbeing.

What will happen to me if I take part? What do I have to do?

Patient Information Sheet Version 2
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If you do decide to take part, you will need to sign a consent form to make sure that you have understood the information on the form. You will be asked to take part in a one-off face-to-face interview whereby you will be asked questions about your personal experiences of weight loss surgery and your life afterwards. The purpose of such questions is to find out more about the experiences people who have had weight loss surgery. This interview is expected to last approximately 60 minutes, however, there will be no rush. This will take place in will take place in either the weight management service, Ninewells Hospital or at Dundee Adult Psychological Therapies Service, 7 Dudhope Terrace, depending on what is more suitable for you.

I would like to audiotape the interview for better recall and analysis of the information you provide. I will be happy to provide breaks at any point within the interview if needed. The information you provide will remain confidential unless you disclose a risk to yourself or another person. If a risk is indicated, relevant professionals will need to be informed. You will be given a letter providing additional sources of support after the interview and contact details should you have any later questions. Once all interviews are completed, you will be offered the opportunity to meet with the lead researcher (Kari Henderson, Trainee Clinical Psychologist) to discuss the findings of the study, you will also be offered a written summary of the findings of this research.

What are the possible advantages/disadvantages of taking part?

People who have taken part in similar studies have found it a positive experience to have a chance to feel listened to. People also describe feeling positive about having the chance to offer their opinion about treatment they have received which can be used to improve services for other people in similar positions. However, it is possible that you may find it upsetting if you decide to discuss any experiences that have been difficult for you. If you do feel upset, the interview can be paused until you feel you can carry on, rescheduled to another day or you can chose to withdraw from the study. If necessary, additional support can also be arranged from the clinical team within the bariatric surgery service should you feel that you would benefit from an opportunity to discuss any issues further.

The information that we get from this study will help us better understand the views and experiences of those who have weight loss surgery. This will not lead to immediate changes within the service, although we hope that the findings of the study will contribute positively to better treatment and care for people with such difficulties in the future. The results of the study are likely to be published so that its findings can be used across the United Kingdom, however you will not be identified in any report or publication.

Will my costs of attending be reimbursed?

Yes. Reasonable travelling expenses up to the value of £5 will be reimbursed. Please remember to bring any tickets with you to your meeting.

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Will my information be kept confidential?

Yes. All the information that is collected during the course of the study will be kept confidential. The interview will be recorded and then written out. All recordings and transcripts will be kept in a locked cabinet within the NHS Tayside property. Once written out, the recordings will be destroyed and any information that could identify you (names, places, workplace, etc) will be removed. The written transcripts will be securely stored for 5 years and then destroyed. It will not be possible for you to be identified in the written transcripts or any publications from this research.

The only instance where your confidentiality may be breached is if information is disclosed that indicates a risk to yourself or others. If this occurs, relevant professionals will be informed.

What will happen to the results of the study?

The results of the study will be submitted to Edinburgh University for review and may be published in a report, scientific journal and/or presented in conferences. Direct quotes from interviews will only be used after being anonymised and any information that might identify you will be removed.

Who has reviewed this study?

The East of Scotland Research Ethics Committee REC 1, which has responsibility for scrutinising all proposals for medical research on humans in Tayside, has examined the proposal and has raised no objections from the point of view of medical ethics. It is a requirement that your records in this research, together with any relevant records, be made available for scrutiny by monitors from the University of Edinburgh and NHS Tayside, whose role is to check that research is properly conducted and the interests of those taking part are adequately protected.

What are my rights?

If you believe that you have been harmed in any way by taking part in this study, you have the right to pursue a complaint and seek resulting compensation through the University of Edinburgh who are acting as the research sponsor. Details are available from the research team. Also, as a patient of the NHS, you have the right to pursue a complaint through the usual NHS process. To do so, you can submit a written complaint to the Patient Liaison Manager, Complaints Office, Ninewells Hospital (Freephone 0800 027 5507). Note that the NHS has no legal liability for non-negligent harm. However, if you are harmed and this is due to someone's negligence, you may have the grounds for a legal action against NHS Tayside but you may have to pay your legal costs.

What if there is a problem?

Any complaint about the way you have been dealt with during the study or any possible harm you might suffer will be addressed. If you decide to take part in the research and are not happy with any aspect of the study, you should ask to speak to the lead researcher, Kari Henderson (01382 306150) or the clinical liaison for the study, Dr Zoe Chouliara, Clinical Health Psychologist, Ninewells Hospital, (01382 740406). Further contact details are given at the back of this sheet. In the event that you are harmed during the research and this is due to someone's negligence then you may have grounds for compensation but you may have to pay your legal costs.

What to do next?

If you are willing to take part in this study please complete the attached sheet and return it to Kari Henderson in the enclosed stamped addressed envelope who will then contact you to arrange a suitable time to carry out the interview.

At the interview, the interviewer (Kari Henderson, Trainee Clinical Psychologist) will ask you to complete the consent form before your interview takes place.

Thank you for taking the time to read and consider the above information.

Contacts for further information

Should you have any further questions about the study, please contact:

Name of Lead Researcher: Ms Kari Henderson
Trainee Clinical Psychologist

Address: NHS Tayside
7 Dudhope Terrace
Dundee
DD3 6HG

Email / Telephone: 01382 306150

Name of supervisor: Dr Zoe Chouliara
Clinical Health Psychologist

Address Department of Health Psychology
NHS Tayside, Clinical Psychology
Level 6
South Block
Ninewells
Dundee
DD1 9SY

Email / Telephone: 01382 740 406

You can also speak to any member of the weight management service about taking part in this study.

Thank you for taking the time to read this information sheet

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Appendix 6

Participant Consent Form

Patient Identification Number for this trial:

NHS
Tayside

CONSENT FORM

Title of Project: Weight loss surgery for adult obesity: The patient's experience of treatment and life post surgery

Name of Lead Researcher: Ms Kari Henderson, Trainee Clinical Psychologist

Please initial box

1. I confirm that I have read and understand the information sheet for the above study. I have had an opportunity to ask questions and these have been answered. ☐

2. I understand that my participation is voluntary and that I have the right to withdraw from the study at any stage without my medical care or rights being affected ☐

3. I agree to information being audio-taped and transcribed ☐


4. I understand that the data collected during the study may be looked at by individuals from the University of Edinburgh and NHS Tayside. ☐

5. I understand that small parts of my interview may be used for publication in reports. I understand that should this happen, I will not be identified from any of the information provided. ☐

6. I agree to participate in this study. ☐

_____ Name of Patient	_____ Signature	_____ Date
_____ Name of Interviewer	_____ Signature	_____ Date

Patient Consent Form Version 2
Date: 11/01/12



Appendix 7

Interview Schedule and Prompts

- Can you tell me about your experiences of having weight loss surgery?
- Can you tell me about what has changed since you have had surgery?
 - What has caused these changes?
 - Since having surgery has the way you think/feel about yourself changed?
 - How do you think/feel about yourself?
 - What has caused these changes?
 - Since having surgery has your relationship with food changed?
 - What is your relationship with food now/before surgery?
 - How do you think about food now? Is this different?
 - How do you think/feel about these changes?
 - What has caused these changes?
 - Since having surgery has how you cope with difficult emotions changed?
 - What do you do now when you feel upset/angry/sad/bored? Is this different?
 - In what ways?
 - What do you think has caused these changes?

General Prompts:

- In what way?
- Can you tell me a bit more about that?
- How do you think/feel about...?
- What do you mean by...?

Appendix 8

Initial Coding of Transcript for Participant 8

The following table illustrates the second step of the analysis process. Subsequent to transcribing and repeated readings of the transcript, the author used exploratory coding (right hand column) to note down comments relating to the transcript. This included 3 aspects of the transcript; descriptive comments highlighting key aspects of the content (underlined), comments relating to feature of the language, such as repetitions, tone, volume (*italics*) and conceptual/interrogative points (**bold**), which relate to more of an interpreted level of the transcript. The extract included is a short section at the introduction of the interview, which focused on the participant telling her ‘story’.

<p>The defensive self (Intellect)</p> <p>In need of external help</p>	<p>went on and on and on and it escalated to 21 and a half stone. I approached my GP during my own studies, I went to university in my late 30s and completed a masters in [work area] and went on to become a [occupation]. I've been involved with [occupation] for a lot of years, over [duration] years but qualified for [time] years so I understood obviously I needed to do something with my weight.</p> <p>I was increasingly worried about my daughter and her copying my bad habits and I realised it wasn't just laziness and eating too much and comfort eating and things because I went through a divorce as well, it was much huger than that, much bigger than that. Even I knew that. I've had counselling over the years, I've tried psychology, I've had psychoanalysis stuff, I've tried CBT, you know, I've taken weight management tablets, I've spent thousands and thousands and thousands of pounds seriously, for 25 years at weight watchers, Scottish slimmer's. The only thing I never did was the slim fast funnily enough. I did everything else, all the stupid diets. I went to weight watchers once when I was 19, when I realised I had a weight problem beginning and I went to go weight, and was a life time member which is quite ironic because I literally was a lifetime member because I kept going back and I got this little gold card and I remember thinking it was quite ironic because my weight at that time should've been something like 9 or 10 or something back then for my height, it's a little bit more these days and I went down to 9 stone, I was heading down the other way.</p> <p>And I realised I was becoming addicted to the addiction of the food, looking back on it now, I can see with the addiction being taken away from me if you like, because this was pre marriage, I was getting ready for a wedding, 2 years after it I got</p>	<p><u>Have educated myself</u></p> <p>Defensive position (I'm intelligent so why do I have this problem?)</p> <p><u>modelling behaviour- daughter</u></p> <p>Sense of guilt <u>Not just overeating</u> <u>My attempts to address underlying difficulties (External help)</u></p> <p>Eating problems link to underlying psychological difficulties</p> <p><u>Developed an addiction</u> Addiction</p>
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I have an addiction to food	<p>married. I was doing the exercise and not eating. I wasn't by any means anorexic but I was heading down that way. So I quickly grasped that because that frightened me more than being overweight so and it just continued.</p> <p>So. I put my name on the waiting list, in that 4 year period I was interviewed by consultants up at the hospital and was told, lovely people but I was told if we could give you it tomorrow, we'd give you it tomorrow, you'd be a perfect candidate, you're not actually that big, you're big but you're not like you know 25 stone. I was saying don't be ridiculous, how big do you want me to be because I'll be dead. You know, I was very aware I was eating myself to death. That's quite scary, really scary, for an intelligent, articulate person who can totally understand why it's happening, it's completely something out of control. It's just the most horrendous feeling. It really is the most horrendous feeling.</p> <p>Because I put myself through university, I self funded, you know, I come from a difficult background. Which I understand are huge factors to all of that. I'm receiving CBT counselling now. I've accessed private counselling because I'm now a year down after surgery. Having lost 7 stone but I haven't quite...I mean my head my head has hugely improved where it was. My emotions have hugely improved because I feel in control for the first time in ever...ever, with my weight.</p> <p>But it still scares the pants off me seriously because...I haven't really, I suppose faced up to the reasons that I became the weight that I did and why it happened and why it felt that the one thing in my life that I couldn't control was the weight and was that.</p> <p>What was the barrier, what was the wall that I couldn't get over and it certainly wasn't the lack of trying I assure you. Every waking moment was thinking about how can I</p>	<p><u>Had other eating difficulties</u></p> <p>From one extreme to another (link between anorexia and obesity- function of behaviour?Control?)</p> <p>Sense of fear <u>Fear (repeated)</u></p> <p><u>Suitable for surgery but surgery unavailable</u></p> <p><u>Eating myself to death</u></p> <p><u>Defending the BS team</u></p> <p><u>Having to be big enough for surgery</u></p> <p><u>Defending intellect</u></p> <p><u>It's (I am?) out of control</u></p> <p><u>Fear</u></p> <p>I've done well....considering</p>
Eating myself to death		
The defensive self (Intellect)		
Eating for control/eating is out of control		
Underlying difficulties linked to obesity/eating problems		
Surgery as External Control		
Fixed but not cured		

<p>In need of external help</p> <p>I can't do this on my own</p> <p>Surgery as External control</p> <p>Surgery is the trigger to weight loss</p>	<p>do this.</p> <p>But it was just something, it just wouldn't allow me to heal. It just wouldn't allow me to find out what it was, I couldn't do it myself.</p> <p>So I know the volume, if I could have the volume restricted. I knew I would be given a good chance to then sort the rest out but I needed the volume so that I could get the weight off, to then start feeling better. To take, for something else to take control of that for me.</p> <p>So I was fairly convinced for a lot of years that if I was going to head down this...and this was no light decision to make because I have a daughter, she's the world to me. I didn't want anything to risk me not being here for her. She's going through quite a crucial point for herself. (daughter's work) She needs her mum, we're very close. She's got weight problems herself, which I feel hugely guilty about. She's healthy and happy about it. She's a much better person about it than I am, than I ever was. She's not as mucked up in the head as I was but she's not got the insecurities that I've got. She's quite a confident girl. But from a health point of view, I'd like to try and teach her to get it done and she knows what she needs to do but she's a comfort eater so. I suppose girls often are but....yeah so I'd like to try and learn as much as I can so that I can support her, so that her children don't have those problems. In my family, interestingly enough, having looked at the stats and tried to figure out what went wrong, [brother], sporty guy, struggles with his weight, has to watch, if he takes the eye off the ball, gets the belly. [brother's age]. My sister is [age] and she's certainly heading towards, you know, if she allowed herself, she would be anorexic. She's the other way. I'm the one in the middle, so I'm the typical middle child. And I'm the</p>	<p><u>Improved (emotions/weight) but some difficulties continue</u></p> <p><u>Haven't fully faced up to cause</u></p> <p>Avoidance of tackling emotional/psychological cause</p> <p><u>Why? Looking for answers</u></p> <p>Sense of desperation/hopelessness</p> <p><u>I have always been trying to resolve problems- get outside help-can't do it myself</u></p> <p>Needed something external to self to intervene- to take & give control- to start process (positive cycle)</p> <p><u>Sense of guilt- daughter's weight problems</u></p>
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<p>Underlying difficulties linked to obesity/eating problems</p> <p>This is a huge problem</p> <p>The defensive self (intellect)</p>	<p>people pleaser, (identifier), I'm the one that negotiates with people and my family are quite a difficult background so I think that's probably where a lot of the control, the issues that I have with food is connected with that. I know that. But it's also about who I am as an adult now because I'm...it's a lot of years since I was a wee lassie so it's not just about that but those are your formative years.</p> <p>Food has been a huge issue for me, all the way through, without going in too much detail, I come from a situation where domestic violence was prominent. It wasn't so much the physical element, it was more the emotional and the chaos of 2 parents who clearly weren't ready for parenting, had 3 children, were a bit young, immature, lot of verbal fighting, lot of chaos. [identifier]...I went to [many] primary schools that I can remember, I'm sure there's more. Couple of high schools. Didn't have a complete education. So wanted to prove to myself because I always felt like I had the potential and I did and I have so that's good and it's been hugely important for me on a personal level to do that but food was an issue. It was better to be a male in my house that a female. Grew up in [identifier], the males went outside working, we all grew up working [identifier], so we worked alongside grown men and women from being wee kids. I don't think you'd get away with that now but you did then. Gaffers daughters, that's what you did. [identifier], (working) from the age of...I can remember [identifier], at the age of [age]. The reason I remember that is because my sister was being born and we were all outside being busy while she was being born. I do remember it. Because dad had orders that's what you did. We didn't have a lot of money, we were relatively, not poor because we were never hungry but relatively poor to some degree. Certainly not as well off as some but everywhere I went, food</p>	<p><u>Statements of knowledge</u></p> <p><u>Siblings have eating difficulties</u></p> <p><u>Issues of control linked to childhood</u></p> <p><u>Difficult past related to eating difficulties</u></p> <p>Underlying difficulties</p> <p><u>Prove to myself</u> – intellect important (defense?)</p> <p><u>Experiences of childhood neglect (Emotional/Nutrition/Education/Safety)</u></p>
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<p>Early experiences of fear/anxiety relating to having enough food</p>	<p>was an issue because there wasn't enough of it. Although you were never hungry, like starving hungry, not like that, but there was never enough of it. Always a worry where it was coming from. My mum obviously struggled a bit being on her own with us girls so I'd offer to go and get the money as you could in those days, you could go and cash the family money, family allowance it was called. Go and get the budget, the shopping. Mum would be working, I'd do pick up my sister. I mean there were only [age] years between us but I was doing that at age 8. So getting the food home and thinking about tea and worrying about tea, coming home and finding we've no cooker and how do you cook a meal without a cooker, well you'd be amazed with how creative you can be. There was always, other people, came round etc. But food was always- when are we getting fed. Food was always a lack of it or you had to go and ask for a shot of cereal for breakfast. Making sure my wee sister had some.</p> <p>So yeah, lots of different places I can remember, different places with food.</p> <p>So I suppose when I look back, that's a lot of reasons why.</p> <p>My sister was controlling her intake of food, she's been force fed almost as a child because she wouldn't take the food. So she used that as a control because it was the only thing we could control in a chaotic situation. Whereas I just ate it if it was put in front of me because I didn't know when the next one was coming. We were quite healthy, I mean looking, I don't have many photographs but in the ones I do have, I was quite a skinny kid, quite tall, skinny, so quite healthy. I wasn't... there was other issues but there wasn't anything....Just chaos really.</p> <p>I mean they weren't bad parents, they were just useless. And I accept all that because</p>	<p><u>Worry about having enough food</u></p> <p>Eating to gain control/Eating is out of control Dichotomy</p> <p><u>Responsible for feeding family</u></p> <p>Sense of anxiety around having/not having food (Control)</p> <p><u>Places?</u></p> <p>Can understand why but not fully accepted?</p> <p><u>Considering my past- it makes sense why I have these difficulties</u></p> <p><u>Early experiences required me to be controlling with food (adaptive coping response) Learned to be controlling with food</u></p>
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<p>Dichotomy-Eating for control/eating is out of control</p> <p>Food is source and solution for anxiety</p> <p>Underlying difficulties linked to obesity/eating problems</p> <p>Surgery viewed as external to the</p>	<p>I still have a good relationship with mum and dad. They're in their own relationships. Still with my mum, I'm the mother role but it's the way it is. She's my mum and that's that. Lots of apologies have been said over the years. So that's not a big gaping wound or anything.</p> <p>But the food theme has remained. And I hadn't realised how prolific that was until I started counselling. I did I suppose deep down because I'm not daft. But I didn't allow myself to unpick that until I'd got control of the actual weight. So this process has allowed me to do that. Because I had surgery (date) so we're now a year past and I've lost, I'm heading towards the 7 stone. Which is really good. The band will lose 60% of my weight so this remainder is probably down to me now and that does scare me. Because I've not been able to be successful in the past with that really so I'm desperately trying to get my head in motion to catch up with the body, which is why I'm undergoing some self selective therapy, almost like CBT stuff with a counsellor from (work). On a private level. I'm also looking into acupuncture, to do the 5 point acupuncture which supports you with addictions, looking at my...it was actually quite a prominent moment when the consultant spoke to me before the surgery (surgeon) said that I was going to get the surgery, I was just completely blown away, I was just so, so shocked. That A was being selected and B there was an opportunity and C that I could be so lucky as to be offered this chance. Literally it was like a golden ticket. To me it was like, it sounds dramatic and cheesy but literally, he was saving my life, I was literally eating myself to death. I know that. From a rational and intelligent woman it sounds ridiculous but it's true. And I had no control. The bus was hurtling along and there was nothing I could do to stop. The motivation of my daughter</p>	<p><i>Described in factual way (lack of emotion) at odds with content</i></p> <p><i>Change in pace of speech-fragmented</i></p> <p>Emotional avoidance?</p> <p><u>Defending parents</u></p> <p><i>Change of topic</i></p> <p><u>Didn't appreciate link to childhood until experienced counselling</u></p> <p><u>Defence of intellect</u></p> <p><u>Eating myself to death</u></p>
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self	<p>couldn't do it, the motivation that I could wake up and have a heart attack. (stressful job) when I got told I was doing this, I mean I couldn't have been in a more stressful job if I tried so the stress wasn't killing me but the food was. How I managed to survive, I have no idea. I am so lucky not to have had a heart attack. I obviously have some kind of genes- can be relatively healthy. Didn't have diabetes or high blood pressure. Cholesterol was relatively ok. My knowledge of food was reasonably ok. So I knew all that. It was just the actual volume.</p> <p>My habit was eating very little during the day but it was the comfort eating that was the problem. I didn't binge, it was the comfort eating. The feelings it gave me. And then, lack of being able to control when you were doing it. It's really hard, it's a bad cycle, it's a hard cycle to stop. So...</p> <p>The fear of doing anything wrong after surgery enabled me to keep that in control for almost a year but in December I noticed the sugar, what I would call, the sweet tooth came back with vengeance. And I hadn't had any inclination to that at all. But I don't think that's any coincidence- I think that's come back exactly at the time I realised I needed some counselling. I recognised...I don't really have a sweet tooth. I think it's a symptom of my anxiety. Knowing that there's a bit of this journey I'm going to have to do myself. I'm worried I'm not going to be good at it. I want to be exactly where I want to be and I deserve it, I've worked hard for it.</p> <p>The operation's one thing, it stops the amount but it doesn't stop the cravings, the choice. It's the sheer fear of doing something wrong and bursting it and having a problem. I mean I've not gone into this lightly at all. I suspect there might be people, I'm not talking about this project, but other situations that don't go into this with the</p>	<p><u>Out of control</u></p> <p><u>The band's role vs my role</u></p> <p>Band/Surgery viewed as something external to self</p> <p><u>Mind/Body separation</u></p> <p>Surgery as external control</p> <p><u>I thought I would die</u></p> <p><u>Seeking professional help</u></p> <p>Sense of hopelessness (I can't do this on my own)</p>
Surgery as external control		
In need of external help		
Eating myself to death		

Eating was out of control	knowledge that they do need. I mean I've gone into this literally to save my life to stop me from dying of a heart attack so that I can be here another 20, 30 years for my daughter. Literally. It's life changing for me. I've also gone into it because I deserve in my life to be at least somewhere happy about how I look. It was never about vanity for me but it's important that I try to make the best...	<u>Eating to feel better</u>
Emotional Eating	I've only got half a journey here, I've got a whole lot to go yet and I think I've done bloody good. Considering what I've come from you know and I do recognise that. I'm not so good at the praise thing but I do recognise that. Owe it to myself and daughter....there is the potential to slide back, want to have a better, outdoorsy lifestyle. I'm lazy, I'm not into exercise and I'm not confident.	Emotional Eating <u>Couldn't control emotional eating</u> <u>Vicious/Negative cycle</u>
Difficulty regulating emotions (anxiety/fear)	And to accept compliments about losing weight as I've had to in the last 6 months definitely. It's embarrassing. It's difficult, it's public, it's...challenging. But I've done it because people are genuinely lovely about it mostly, only had a couple of flippant remarks. And I've debated about whether to tell people, I knew people were going to notice. I tried to figure out what I would be comfortable with. I'm a really honest up front person and I decided that part of my shame of being so obese and overweight and there was a huge amount of that embarrassment. The only way I could start to dispel that was to be honest with people. So when people have been genuinely nice and I go to that beyond that initial, oh my god you've lost so much weight, once we've got by the niceties and if they do ask, god I'm really interested, how did you do that, then I think, OK and then I tell them. And they're just like- wow. You know so. And genuinely most people, you see very quickly whether they approve or not. Most people approve but I've got to the point where that's not my biggest worry, I'm not	Sense of hopelessness/out of control <u>Fear (of failure)/Doubt over own ability</u>
Eating myself to death		Emotion regulation- lack of coping skills to manage emotional upheaval from therapy
Incomplete journey		<u>Need external help</u> <u>I was going to die/Would have died without surgery</u> <u>Concern over appearance</u> <u>It's for my daughter</u>

<p>Shame associated with obesity/surgery</p> <p>Incomplete journey</p>	<p>going to give that a lot of worry. My biggest worry for me is how I now more on to the next level. I see it like this platform, there's different platforms and I'm trying to work my way up. There's a lot to go yet.</p>	<p><u>Ongoing process</u></p> <p>I've done well....considering</p> <p><u>Feeling exposed/ashamed</u></p> <p><u>Shame of being obese</u></p> <p>Sense of feeling ashamed (weight/surgery)</p> <p>Sense of feeling judged- for being overweight/having surgery</p> <p><u>Reactions from other people</u></p> <p><u>Aware that some people disapprove of surgery (most people approve)</u></p> <p><u>Different levels to work through</u></p> <p><u>Journey not over</u></p> <p><u>Surgery is only part of the solution</u></p>
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Appendix 9

Table of superordinate and subordinate themes for Participant 8

The following table illustrates the fourth stage of analysis, in which the emergent themes (as illustrated in the previous Initial Coding Table) are explored and organised further into superordinate and subordinate themes for participant 8's entire interview. As would be expected, not all of the themes from participant 8 went on to be included in the overall themes of the study. To illustrate which of participant 8's themes were found to be present across the majority of cases (and were therefore included in the major themes of the study), the Superordinate/Subordinate themes have been included in grey italics.

Superordinate Theme	Subordinate Theme	Quote
This is a huge problem	Duration of Problem	<p>“I have had a weight problem, what I would consider a significant weight problem as in obesity which is the horrible term that's used but that's the medical term. Probably I would say I started to become slightly obese heading towards morbidly, morbidly obese for 23 years”</p> <p>“Food has been a huge issue for me, all the way through”</p> <p>“So I was really desperate, really, really desperate. And I have to say, I've recently discussed this with my counsellor, particularly in those 4 years waiting, particularly in the middle, not so much at the end because I'd just accepted that I was going to die of a heart attack.”</p> <p>“ I've had counselling over the years, I've tried psychology, I've had psychoanalysis stuff, I've tried CBT, you know, I've taken weight management tablets, I've spent thousands and thousands and thousands of pounds seriously, for 25 years at weight watchers, Scottish slimmer's”</p>
	I can't fix this myself	<p>“ I couldn't do it myself”</p> <p>“I don't know how to fix it. I can't fix it, I need help”</p> <p>“I need help. So I was really desperate, really, really desperate.”</p> <p>“Knowing that there's a bit of this journey I'm going to have to do myself. I'm worried I'm not going to be good at it.”</p>

	<p>Stuck in a negative cycle</p>	<p>“It's a very, very destructive cycle”</p> <p>“lack of being able to control when you were doing it. It's really hard, it's a bad cycle, it's a hard cycle to stop”</p> <p>“then you get into this cycle of, that's cause I am fat...It's cause I am”</p> <p>“I'd sit and eat rubbish and the sugar burst would give me a burst, then I'd get depressed and go to bed, wake up tomorrow and think- god I've probably put on another 2 pounds.”</p> <p>“Just this horrible, horrible cycle of- is it today, will it happen today, tomorrow, can I plan ahead.”</p> <p>“I if don't, I'm going to end up the same isolated cycle I was in before which was keep it all to yourself, tell no one and just go through the ritual and the humiliation of it all and something will have to happen”</p>
<p>The neglected mind</p>	<p>Surgery helped but did not address underlying issues</p> <p><i>Helped But Not Fixed</i></p>	<p>“But the physical bit's been done, it's the mental and the emotional bit that's left.”</p> <p>“You're asking me to do something I don't know how to do.”</p> <p>“I would like some almost like training. To be retrained, some support in that.”</p> <p>“The operation's one thing, it stops the amount but it doesn't stop the cravings, the choice”</p>

		<p>“Having lost 7 stone but I haven't quite...I mean my head my head has hugely improved where it was.”</p> <p>“I'm desperately trying to get my head in motion to catch up with the body”</p>
	<p>Need for psychological therapy</p> <p><i>Underlying Difficulties</i></p>	<p>“I think they should really think about the therapeutic elements of this as well.”</p> <p>“There is a whole element missing.”</p> <p>“I'm receiving CBT counselling now. I've accessed private counselling because I'm now a year down after surgery.”</p> <p>“But the food theme has remained. And I hadn't realised how prolific that was until I started counselling.”</p>
Dichotomy of Control	<p>Eating to gain control</p> <p><i>Emotional Eating</i></p>	<p>“because it (food) was the only thing we could control in a chaotic situation”</p>
	<p>Eating is out of control</p>	<p>“it was just one aspect of my life that I literally could not control and didn't know how to reign it in”</p> <p>“it's completely something out of control. It's just the most horrendous feeling. It really is the most horrendous feeling.”</p>

		<p>“it felt that the one thing in my life that I couldn't control was the weight”</p> <p>“I had no control. The bus was hurtling along and there was nothing I could do to stop.”</p>
	<p>Surgery provides control</p> <p><i>Surgery as External Control</i></p>	<p>“for something else to take control of that for me”</p> <p>“ I think the anxiety's far less because I don't have the anxiety of overeating because I can't, physically cannot, it's restricted”</p> <p>“I know at one point my body will say ok full up.”</p> <p>“the band does allow you”</p> <p>“I knew I would be given a good chance to then sort the rest out but I needed the volume so that I could get the weight off, to then start feeling better. To take, for something else to take control of that for me.”</p>
	In defence of my intellect	<p>“I'm an articulate and intelligent woman and I just don't know how I allowed myself”</p> <p>“I mean I know I'm not stupid”</p> <p>“for an intelligent, articulate person who can totally understand why it's happening”</p> <p>“Didn't have a complete education. So wanted to prove to myself because I always felt like I had</p>

The defensive self		<p>the potential and I did and I have so that's good and it's been hugely important for me on a personal level to do that"</p> <p>"I'm not daft"</p>
	<p>In defence of surgery</p> <p><i>How Much Have You Cost the NHS?</i></p>	<p>"I have taken up a huge amount of money for this operation. But I think the input I've had in society for the past 20 years and for the next 20 years is...I've earned that. I think it's more beneficial for me to be around than not be around."</p> <p>" When I found out about the operation- how dare I even think about having an alcoholic drink- he's giving me an operation that's costing tax payers money, no way could I do that. So I just haven't since."</p>
<p>Being judged and Feeling Shamed</p> <p><i>Being Judged Negatively</i></p>	<p>For having surgery</p> <p><i>Being Judged Negatively</i></p>	<p>"you see very quickly whether they approve or not"</p> <p>" It's embarrassing. It's difficult, it's public, it's...challenging."</p> <p>"only had a couple of flippant remarks"</p> <p>"And I've debated about whether to tell people"</p> <p>"It's really hard...because it's quite public, it feels very public but it's not, it feels a little bit invasive at times, it feels not private anymore"</p>
	For being obese	"that part of my shame of being so obese and overweight and there was a huge amount of that embarrassment"

	<i>How Could You Get To That Size?</i>	<p>“I wouldn't fly, I was phobic about flying but actually the reason was the fear of humiliation. I couldn't bear the thought of not fitting into a seat”</p>
<p>My mortality</p> <p><i>Being Obese is a Barrier to Living</i></p>	<p>I was eating myself to death</p> <p><i>Eating Myself to Death</i></p>	<p>“I was literally eating myself to death”</p> <p>“I thought it's either that or I'll be dead by the time I'm 45.”</p> <p>“It sounds like madness now. I'm trying to face up to how close it came to that being a reality. I just expected to die”</p> <p>“I'll be dead. You know, I was very aware I was eating myself to death. That's quite scary, really scary”</p>
	<p>Surgery saved my life</p>	<p>“To me it was like, it sounds dramatic and cheesy but literally [the surgeon] was saving my life</p> <p>“Literally it was like a golden ticket.”</p> <p>“Going to (dietician) and consultant. It's really important to me that I consistently prove, it's almost like a child looking for approval. I want to do well by them because they've just given me a whole lifeline really”</p> <p>“I've gone into this literally to save my life to stop me from dying of a heart attack so that I can be here another 20, 30 years for my daughter. Literally. It's life changing for me”</p>

<p>Emotion regulation</p> <p><i>Coping With Emotions</i></p>	<p>Emotional eating</p> <p><i>Emotional Eating</i></p>	<p>“the sweet tooth came back with vengeance. And I hadn't had any inclination to that at all. But I don't think that's any coincidence- I think that's come back exactly at the time I realised I needed some counselling. I recognised...I don't really have a sweet tooth. I think it's a symptom of my anxiety.”</p> <p>“the comfort eating that was the problem.”</p> <p>“I didn't binge, it was the comfort eating. The feelings it gave me and then, lack of being able to control when you were doing it. It's really hard, it's a bad cycle, it's a hard cycle to stop”</p> <p>“the more anxious I am...the more likely I'm going to need some stimulus from food. The stimulus from food would probably be along the ethos, be nice to yourself, you don't want to lose the plot here, so be nice to yourself to me, would normally equate to a glass of wine, a bar of chocolate and a bag of crisps.”</p> <p>“you feel really crap and...The little kid comes back and it's like ohh anxiety and so I start to control. But the control with food is out of control, it's almost like, it's like...it's out of control”</p> <p>“And it's not a craving as such really, it's an emotional response to the anxiety that I felt earlier in the day. That will give me the instant relief by having the chocolate or whatever but then it's the punishment bit afterwards. It's a horrible cycle.”</p>
	Emotional avoidance	<p>“Yeah if it's sitting looking at you, you kind of have to deal with it you can't ignore it”</p>

	<i>Avoidance of Negative Emotions</i>	<p>“this wanting to shut the world out”</p> <p>“Because I’d put this front on that I’m a very capable, motivated, family orientated. But there’s that side of me that I never allowed out because it was too hard and I thought if unpacked that it’s going to be a huge traumatic event because I don’t know how to fix it.”</p> <p>“I wasn’t... there was other issues but there wasn’t anything...”</p>
Impact of obesity	Excess skin- skin removal	<p>“I don’t want to feel ugly”</p> <p>“I don’t want to feel ugly and I think that might happen if basically if there’s a lot of skin”</p> <p>“My aim isn’t to necessarily to get to the BMI of 27 or whatever to get the operation, it’s about getting as much of that weight off as I can and maintaining it”</p>
	<p>Barrier to life</p> <p><i>My Life is On Hold</i></p>	<p>“It’s just constant. I started avoiding things in my life that would give me any pleasure at all because I didn’t feel worthy of it”</p> <p>“I didn’t get into relationships, I did but only half heartedly.”</p> <p>“I wouldn’t fly, I was phobic about flying but actually the reason was the fear of humiliation. I couldn’t bear the thought of not fitting into a seat”</p>

<p>Overarching sense of fear</p>	<p>Fear of surgery failing</p>	<p>“Fear of failure is a big thing. Going to (dietician) and consultant. It's really important to me that I consistently prove, it's almost like a child looking for approval”</p> <p>“The fear of doing anything wrong after surgery enabled me to keep that in control for almost a year”</p> <p>“I'm worried I'm not going to be good at it.”</p> <p>“I don't want it to be sore and I don't want to get a fright and I get really anxious when it gets sore- I think oh my god what have I done because it's a medical emergency if anything happens.”</p> <p>“what scares me a lot is failing”</p> <p>“It's the sheer fear of doing something wrong and bursting it and having a problem.”</p> <p>“I'm still standing on the cliff. I can still see it. If I was really to get scared, there's a tendency to go back”</p> <p>“biggest worry for me is how I now move on to the next level”</p>
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	Of being out of control	<p>“But it still scares the pants off me seriously because...I haven't really, I suppose faced up to the reasons that I became the weight that I did and why it happened and why it felt that the one thing in my life that I couldn't control was the weight and was that.”</p> <p>“Control is definitely equals more often than not can equal anxiety”</p> <p>“I tried to control that but it was more about my anxiety.”</p> <p>“Control's a huge issue for me. I get anxious about a lot of things.”</p> <p>“The anxiety is more about just managing and being successful and being able to lose the weight and me doing that. Before hand it was more about losing control. Now I feel more in control but not in the controlling way I was before more in a normal control like how normal people live their lives”</p> <p>“the anxiety and the control is different but there's still a tendency. I'm still standing on the cliff. I can still see it. If I was really to get scared, there's a tendency to go back”</p> <p>“That's quite scary, really scary, for an intelligent, articulate person who can totally understand why it's happen, it's completely something out of control. It's just the most horrendous feeling. It really is the most horrendous feeling”</p>
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Attempts to understand why this has happened	<p>My difficult childhood led to this</p> <p><i>Underlying Difficulties</i></p>	<p>“ my family are quite a difficult background so I think that's probably where a lot of the control, the issues that I have with food is connected with that”</p> <p>“I come from a difficult background. Which I understand are huge factors to all of that”</p> <p>“everywhere I went, food was an issue because there wasn't enough of it. Although you were never hungry, like starving hungry, not like that, but there was never enough of it.”</p> <p>“because it was the only thing we could control in a chaotic situation”</p> <p>“I just ate it if it was put in front of me because I didn't know when the next one was coming.”</p> <p>“But food was always- when are we getting fed. Food was always a lack of it”</p>
	<p>I have an addiction</p> <p><i>Addiction to Food</i></p>	<p>“I realised I was becoming addicted to the addiction of the food”</p> <p>food addiction, it's a disorder you have and you have to recognise it as such</p> <p>“I can only equate it to something like (identifier) addictions, and I'm not saying that this addiction is the same but this is a similarity to it.”</p>
	<p>Difficulties seeing myself</p> <p><i>Seeing Myself Versus</i></p>	<p>“I'm a year on and I still don't have a full length mirror at my house. I just look from here up. So I still don't have that. I'm working towards trying to. One step at a time. There's a lot of image problems still going on. Insecurities..”</p>

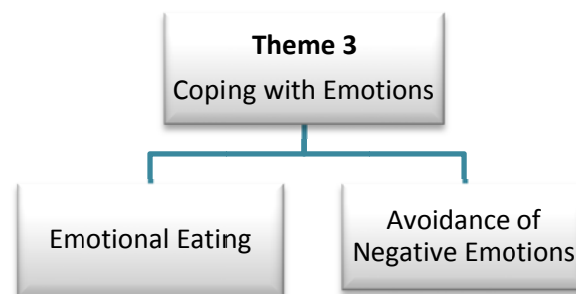
Self image difficulties	<i>Avoiding Myself</i>	“I do allow photographs to be taken- I haven't for many years. With my trusted friends. Image is still difficult. But I don't know if that'll ever be completely good.”
	Excess skin- another problem	“I will be really lucky if I can get something done with my tummy because I need to put a couple of sizes bigger because of my tummy and the excess skin's going to be a huge problem” “I don't want to feel ugly and I think that might happen if basically if there's a lot of skin”
<i>Changing Views of the Self</i>		
What changes following surgery	Behavioural changes	“do the small tea plate thing, it's visual and I use a tea spoon or a small fork. I have a certain routine with that now and I can tell quite quickly whether it's too much or not” “Eat children’s meals. It would upset me to buy a meal and pay full price and not eat it because that would make me think- I’ve got to finish it” “ I've turned to arts and crafts- anything that uses my hands that doesn't involve eating or drinking.”
	Changes to emotional coping <i>Coping With Emotions</i>	“I talk a lot more to my friends, something I didn't do much before. I face up to the issues of the anxiety I'm having and I let off steam with them. I use text quite a lot. I just take the time and talk whereas before I would just immerse myself with rubbish and watch TV in my pyjamas.” “it was incredibly difficult. For me as a person, it's incredibly difficult. I'm not used to relying on people.” “I had to find another outlet or I'd probably burst I think- with stress and anxiety”
<i>Helped but not Fixed</i>		

Appendix 10

Sample of extracts for superordinate theme 3: Coping with emotions

The purpose of this section is to provide an example of the way the superordinate theme of ‘Coping with Emotions’ was shared across participants. This demonstrates some of the process involved in the sixth stage of analysis in which the focus is on the identification of patterns across the cases. In this instance, the pattern was the universal discussion and provided examples of using food and avoidance as primary methods of coping with emotional distress.

The quotes provided clearly link to the subordinate themes of ‘Emotional Eating’ and ‘Avoidance of Negative Emotions’. Quotes used in the results sections are highlighted in bold. For the theme ‘Avoidance of Negative Emotions’, only direct quotes have been included due to the difficulty portraying participants seemingly avoiding topics during the interviews.



Subordinate Theme: Emotional Eating

“Sometimes I’ll have some Wheatabix and it’s not that I’m hungry, it’s that craving, it’s really difficult. And it’s not a craving as such really, it’s an emotional response to the anxiety that I felt earlier in the day. That will give me the instant relief by having the chocolate or whatever but then it’s the punishment bit afterwards. It’s a horrible cycle.”

(Participant 8)

“to me being happy was a huge amount of food, the more the merrier and constant eating. I was... that was.... when I say I was happy, I was contented with it, maybe not happy but contented”

(Participant 9)

I would still go back to food but I have to be very careful. Em... (pause) if I do go down that road, I have to think to myself, 'whoa. this is a bad habit and you know where you're going with this' and sometimes it works and sometimes it doesn't.

(Participant 9)

“My mind is still bouncing...and it's like I just can't close it down and I can't get it to shut up...So I have to cure it somehow and I always believe I've cured it once I've eaten because as soon as I've eaten, everything goes away, the whole issues goes away, even though they're probably still there but well, they've gone for me because I've fixed my problem”

(Participant 3)

“I can certainly remember days of feeling really, really depressed and what do you do? eat. I got my happiness from eating it was the only thing.”

(Participant 4)

“that's my cosy cover. I have a nice bar of galaxy and I'll feel much better... It's there if I need cheering up, it's there if I need to be rewarded, it's there if I'm bored, if I'm tired. It's just there.”

(Participant 7)

“Well before, I used to eat, ehm, now, ehm, I annoy my sister (laughs) text her, ehm, or I'll text my friends or whatever, you know, I just tell them how I'm feeling and you know, they'll either give me a phone or they'll text back... I think yeah, I think initially you do try to overeat but you can't, you physically can't so you have to think of other ways of 'how am I going to let the stress out?'. How you know, how, you know, how? Where as now I'm physically having to, I'm having to speak to people now. Whereas before I just, I would just wouldn't have.”

(Participant 2)

“I start eating to try and think about it but I don't think about it because the whole thing just melts and when it melts it's like, problem solved”

(Participant 3)

“I knew I used food as a crutch. I knew it. I was...I was a boredom eater”

(Participant 2)

“I talk a lot more to my friends, something I didn't do much before. I face up to the issues of the anxiety I'm having and I let off steam with them. I use text quite a lot. I just take the

time and talk whereas before I would just immerse myself with rubbish and watch TV in my pyjamas.”

(Participant 8)

“I'll go and have a weight watchers em chocolate sundae. Because I made a conscious effort not to eat normal stuff, when I have it I'll have weight watchers products or maybe diabetic... trying to be good, so I'm going to fail but I'm still trying to be good.”

(Participant 3)

“I used to comfort eat before and that's when I would go for crisps and snacky things and if I'd had a bad day and things I would just sort of comfort eat. I don't do that the same. I'd maybe, I mean if I do, I try and eat things differently like an apple or a piece of fruit.”

(Participant 10)

“I'll be angry, I'll be raging, shouting and screaming and what have you, but the bottom line is food. You know, some people, I always think, when you see people who've had a trauma or something happened and all of a sudden you see them losing weight because they've not been eating? I mean, how could they not eat?! The first thing I do is... they could sit with an empty fridge and I've got a full fridge, do you know what I mean? And it's only, like I say, the fact of the operation that I can't sit and do that...I can't control it and I will shovel it in anyway, and I might only get two mouthfuls and I'll be full because I've not long had something. But at least I have had that”

(Participant 3)

“I would come home, if I'd had a particularly stressful night, I would've made a cup of tea and a sandwich and ate it, you know, where as now, I've had quite a stressful weekend, last weekend (details of job) and no, I just came home, had a glass of flavoured water and went to bed and it didn't...didn't bother me”

(Participant 6)

“maybe I still emotionally eat, it's just that I can't emotionally eat to the degree that I was before”

(Participant 2)

Subordinate Theme: Avoidance of Negative Emotions

“I can't believe that the truth might be something that I'd like. What's the point in looking in the mirror because I know you're not going to like it and why bother sending for a size 18 because I know it's not going to fit so why upset yourself? Let's just not bother.”

(Participant 7)

“Inside me I'm like, ok, I'll keep a lid on this, it's like the pot's boiling but you've put the lid on, you're going to maintain it and however long I maintain it, it could be days, it could be a week but that lid's coming off”

(Participant 3)

“Our family's not one for talking. We don't hug, we don't cuddle so you know. That, we've been brought up to hide my fee...not hide my feelings but just get on with it. You know so. That's what you did so, I do struggle, talking about things at time and because it's, you know, it's like why am I feeling like this?”

(Participant 2)

“I also have a ehm a I've always had a good ability, if something happened that's stressful I think I've kind... like don't think about it. So it doesn't bother me...if I don't think about it, it doesn't bother me”

(Participant 1)

“there's that side of me that I never allowed out because it was too hard and I thought if unpacked that it's going to be a huge traumatic event.”

(Participant 8)

“but for me, it's not something I think about, I just think, I'm ok, rape happened and that's it..”

(Participant 3)

“In the past I could go in a shop and spend a fiver on chocolate and sit and eat it when nobody's there and never feel sick and just pretend that it's never happened”

(Participant 7)

“there's that side of me that I never allowed out because it was too hard”

(Participant 8)

“I tend to bottle things up. I tend to keep them in rather than feeling quite low and that I'll kind of maybe keep myself to myself and lock myself away.”

(Participant 2)

“try and think about it but I don't think about it because the whole thing just melts and when it melts it's like, problem solved”

(Participant 3)

“I don't even want to have that conversation because it's just too hard”

(Participant 8)

“so I don't have to go home and face my own issues, so if I work and support other people's”

(Participant 8)

“if I don't think about it, it doesn't bother me”

(Participant 1)

“it was just a case of well 'what can you do' what's the point in sitting crying about it?”

(Participant 1)

Appendix 11

Obesity Surgery Instructions for Authors

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Effective October 2011: Every contributing author must complete the official **ICMJE Conflict of Interest (COI) form** which is available at http://www.icmje.org/coi_disclosure.pdf. The corresponding/submitting author is responsible for collecting all participating authors' completed ICMJE

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GENERAL

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